



UGANDA PROTECTORATE.

ANNUAL REPORT
OF THE
DEPARTMENT OF
AGRICULTURE
(PART I.)

FOR THE
Year ended 31st December, 1938.

PRICE: SHS. 3.

Published by Command of His Excellency the Governor.

ENTEBBE:
PRINTED BY THE GOVERNMENT PRINTER, UGANDA.
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(PART I).

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STATISTICIAN	..	..	Entebbe	..	2	..	97
SENIOR AGRICULTURAL OFFICER	..	..	Kampala	..	281	..	15
SENIOR AGRICULTURAL OFFICER (EDUCATION)	..	..	Kampala	..	281	..	436
KAMPALA PLANTATION	..	..	Kampala	..	281	..	15
KAWANDA EXPERIMENT STATION	..	..	Kampala	..	265	..	—
BOTANIC GARDENS	..	..	Entebbe	..	60	..	38
SENIOR AGRICULTURAL OFFICER	..	..	Jinja	..	67	..	101

PRINCIPAL EXPERIMENT STATIONS.

- | | |
|----------------------------|-------------------------------|
| (1) Kawanda (New Station). | (4) Serere, Teso. |
| (2) Bukalasa, Mengo. | (5) Bugusege, Bugishu. |
| (3) Kampala. | (6) Botanic Gardens, Entebbe. |

SUBSIDIARY STATIONS.

- | | |
|-----------------------|------------------------------|
| (1) Ngetta, Lango. | (4) Mbale, Central District. |
| (2) Kyembogo, Toro. | (5) Kachwekano, Kigezi. |
| (3) Wanyange, Busoga. | |

CONTENTS.

Report of the Director of Agriculture	..	..	..	..	..	<i>Page</i>
						3

APPENDICES.

I.	Report of the Senior Agricultural Officer (Education)	..	..	20
II.	Report of the Senior Agricultural Officer, i/c Buganda and Western Provinces	..	..	25
III.	Report of the Senior Agricultural Officer, i/c Eastern Province	..	..	37
IV.	Report of the Agricultural Officer, i/c Northern Province	..	..	49
V.	Statement of Revenue and Expenditure	..	..	62
VI.	Comparative Statement of Exports of Domestic Produce from the Protectorate	..	..	63
VII.	Statistics of Native Agriculture—Crops under Cultivation	..	..	64
VIII.	Statistics of Native Agriculture—Livestock	..	..	65
IX.	Statistics of European Agriculture—Crops under Cultivation	..	..	66
X.	Statistics of Asiatic Agriculture—Crops under Cultivation	..	..	67
XI.	Statistics of Ginning Machinery	..	..	68—69
XII.	Uganda Cotton Exports	..	..	70
XIII.	Cotton Production Graph.			
XIV.	Rainfall Charts.			

DEPARTMENT OF AGRICULTURE.

ANNUAL REPORT

For the Year ended 31st December, 1938.

(PART I).

This part of the Annual Report contains a review of the agricultural activities in the Protectorate during 1938, and a record of work of the administrative and educational sections of the Department. Detailed accounts of experimental work and research are published later in the year in Part II.

Weather Conditions.

The year was most difficult for agriculturalists throughout the Protectorate owing to the vagaries of the weather. In March the rains were very light and April was a dry month. Good rains fell in May but, unfortunately, these were followed by dry spells of varying length and intensity until August before the weather became normal. The planting of food crops was thus unavoidably delayed until May and likewise it was not possible to plant cotton until a much later date than usual.

The outstanding feature is perhaps that there was no real famine in any part of the Protectorate. Any year that ends in the figure eight is popularly feared locally as a famine year, and it is a fact that 1908, 1918 and 1928 were famine years in large parts of the country. There is no statistical or other basis for assuming this cycle to be constant, and indeed the sunspot theory as an explanation of high and low lake-level cycles has broken down. There is no reason to doubt, however, that the weather in 1938 was true to type.

Special attention was called in 1936 to the possibility of 1938 being a famine year and Administrative and Agricultural Officers made special efforts then, and later, to encourage the production of adequate stocks of food. To what extent the absence of famine is due to the stores of food laid up both in and out of the ground as a result of these efforts and to what extent it is due to the comparatively favourable weather towards the latter part of 1938, is questionable. In all probability the absence of famine was due in equal measure to both human effort and to the weather. It is satisfactory to be able to record that apart from slight localized shortages the people were able by their own efforts to meet the situation.

In Appendix VI a full comparative statement of domestic produce exported from Uganda will be found. The following short table summarises the exports of the more important agricultural items:—

Article	Unit of Quantity	1936		1937		1938	
		Quantity	£	Quantity	£	Quantity	£
Cotton Lint <i>bales of 400 lbs. net.</i>		321,332	3,326,879	338,391	4,269,284	402,200	3,427,948
Cotton Seed <i>ton</i>		85,762	263,180	103,441	392,082	122,716	306,939
Coffee, raw <i>cwt.</i>		228,783	381,244	257,939	420,481	280,141	327,636
Tobacco, unmanufactured <i>lb.</i>		228,289	8,058	166,842	4,344	283,356	7,798
Tobacco, manufactured .. <i>lb.</i>		10,364	1,743	22,536	3,784	29,222	4,439
Cigarettes <i>lb.</i>		207,306	24,941	405,923	40,677	403,698	42,974
Tea <i>cwt.</i>		736	4,067	1,360	7,728	1,222	6,967
Sugar, refined <i>cwt.</i>		180,652	90,127	226,840	123,516	224,878	118,843
Rubber, plantation, raw <i>Cental.</i>		12,819	30,724	12,699	33,043	14,802	36,677
Groundnuts <i>ton</i>		1,465	18,668	135	1,624	..	..
Sesame Seed <i>ton</i>		1,551	19,227	1,123	14,017	819	8,679

Notes on the Major Economic Crops.

COTTON.

1937-38 CROP.

In the Annual Report for 1937, it was stated that although there was every indication of a large crop it was difficult at that time to make a confident estimate of yield since it was probable that much of the benefit of early planting would be nullified by the exceptionally wet weather which occurred in the last quarter of the year. In early 1938, however, weather conditions were ideal for harvesting and total sales were equivalent to 417,179 bales as compared with the Department's estimate issued in the previous December of 346,000 bales. The following tables gives details of acreage and production in the various districts:—

Province and District	Acreage		Sales in tons		Average yield per acre in lbs.	
	1936/37	1937/38	1936/37	1937/38	1936/37	1937/38
BUGANDA—						
Mengo	611,253	793,731	69,971	85,560	256	241
Masaka	65,947	57,161	14,384	14,975	489	587
Mubende	18,148	27,782	4,527	4,901	559	395
TOTALS	695,348	878,674	88,882	105,436	286	269
EASTERN—						
Busoga	188,032	262,021	40,524	52,629	483	450
Budama	80,714	84,590	8,705	11,349	242	331
Central—Bugwere	133,359	148,239	15,706	22,005	264	333
„ —Bugishu ..	47,043	35,284	4,440	6,662	211	423
Teso	150,878	141,061	18,394	18,261	273	290
TOTALS	600,026	671,195	87,769	110,906	328	370
NORTHERN—						
Lango	84,784	102,296	9,867	16,719	261	366
Bunyoro	24,016	18,876	2,802	3,604	261	428
Acholi—Madi ..	5,672	5,040	755	873	298	388
„ —Gulu	22,750	20,297	2,338	3,059	330	338
„ —Chua	25,259	32,025	2,671	3,925	237	275
West Nile	11,700	15,845	1,395	2,439	267	345
TOTALS	174,181	194,379	19,828	30,619	255	353
WESTERN—						
Toro	15,142	14,849	894	1,360	132	205
Ankole	132	60	23	..	390	..
TOTALS	15,274	14,909	917	1,360	134	205
TOTALS	1,484,829	1,759,157	197,396	248,321	298	316

This crop of 417,179 bales is again a new record figure of production, being well in advance of the previous year's record crop of 331,625 bales. The actual export of lint was 1,608,803 centals, equivalent to 402,200 bales of 400 lbs. net.

The chief reason for this record production was a combination of good weather conditions, early planting and a larger acreage. The improved yields obtained in the drier areas were undoubtedly due to early planting. Propaganda in this direction resulted in the proportion of the crop planted by the end of June being increased by 9 per cent.

The total number of working ginneries was 143, which is three more than the corresponding figure for 1937.

As in previous years the minimum price payable for seed cotton was calculated from the formula recommended by the Price Fixing Committee. The formula was similar to that used previously with the exception of minor adjustments which resulted in more favourable prices becoming payable to the growers. Again it is to be noted that in Teso District the prices paid were considerably below those paid in other parts of the Eastern Province.

Ginning pools or working arrangements amongst ginners operated in most zones and continued to establish themselves as a permanent feature of the buying and ginning side of the industry.

India maintained its position as the largest customer for Uganda lint, and exports to India rose from 929,727 centals in 1937 to 1,321,598 centals in 1938. Exports to the United Kingdom increased from 35,369 centals in 1937 to 102,603 centals, but those to Japan dropped from 332,592 to 126,558 centals.

The local price of cotton seed varied between Shs. 21 and Shs. 28/50 per ton f.o.r. Uganda ports and stations, and the large total of 122,718 tons was exported.

The system of quota allocation of railway space was again efficiently supervised by the Uganda Cotton Association in co-operation with the railway authorities.

The cotton crop, grown from Uganda seed, of the Misseny area of the Lake Province of the Tanganyika Territory was purchased through the Masaka Ginning Pool and imported into Masaka for ginning. Similarly the crop grown in the Yei area of the Sudan from Uganda seed, was purchased by a Uganda firm and imported into the West Nile District for ginning.

1938-39 CROP.

As already stated, the planting season was most difficult owing to the very dry weather, which delayed planting of both food crops and cotton, and which later in the year checked the growth of the young cotton plants. The growers, however, deserve high praise for their perseverance in clearing land under unusual difficulties and for replanting large tracts which withered during the drought.

After August the plants grew well, and there were prospects of normal yields being obtained until November, when the rains suddenly ceased. At the end of the year, owing to the dry conditions which checked the growth of the late plantings, it was estimated that the crop would not exceed 325,000 bales of 400 lbs. net.

The usual pests and diseases were present in all districts, but nowhere in such proportions as to cause anxiety, except in one area in Busoga where *Helopeltis* caused considerable damage on badly eroded soil.

It is worth recording a small development of some interest which has occurred in recent years, as a result of road development, in Busongora County of Toro District. This is a sparsely populated area and a few years ago very little cotton was grown. Now, however, good cotton plots

are to be seen on the Lake George plains and again in Bwera gombolola to the north of Lake Edward. These plots prove that much of this area is suitable for cotton although the thinness of the population, coupled with the long distance from railhead, indicates that any development of cotton growing will necessarily be slow. The completion of the new road to Bundibugyo in Bwamba County will also facilitate the expansion of cotton growing in this fertile valley of the Semliki. Hitherto the crops from this area had to be carried in head-loads over a difficult ridge of the mountain-range.

In the Ankole District another attempt to grow cotton over a wider area has again been unsuccessful owing to unsuitable climatic conditions. It is not proposed to continue this experiment as there is now sufficient proof that it is not a suitable crop for this district except in certain localities bordering on the Masaka and Toro Districts where conditions are slightly more favourable.

The following table gives the acreages by districts and provinces:—

	1937 Acres	1938 Acres
BUGANDA PROVINCE—		
Mengo	793,731	650,215
Masaka	57,161	55,593
Mubende	27,782	20,834
TOTALS ..	878,674	726,642
EASTERN PROVINCE—		
Busoga	262,021	254,502
Budama	84,590	83,675
Central—Bugwere ..	148,239	121,722
„ —Bugishu ..	35,284	25,492
Teso	141,061	126,312
TOTALS ..	671,195	611,703
NORTHERN PROVINCE—		
Lango	102,296	104,566
Bunyoro	18,876	16,759
Acholi—Madi ..	5,040	5,260
„ —Gulu ..	20,297	21,866
„ —Chua ..	32,025	23,706
West Nile	15,845	11,137
TOTALS ..	194,379	183,294
WESTERN PROVINCE—		
Toro	14,849	8,348
GRAND TOTALS ..	1,759,157	1,529,987

INCREASE AND DISTRIBUTION OF NEW VARIETIES.

Seed of the strain S.P.20 was introduced into the Usuku County of Teso District for planting in 1938. This strain, which is a derivative of U.4.4.2. selected at Serere, has proved in field trials to be well suited to Usuku conditions owing to its early maturity, high resistance to Black-arm, superior yields and a higher ginning out-turn. It has, however, a short and harsh staple which makes it unsuitable for general distribution. Another derivative of U.4.4.2.—S.P.84.—was grown in the Mulondo and Kadunguru peninsulas in the segregated area in Teso for increase purposes prior to further distribution.

In the elephant grass area the strain B.P.52 (a derivative of Nyasaland Upland) was planted for increase purposes in the Kawanda Segregated Area near Kampala. Full details of these and other new strains will be found in Part II of the Annual Report.

YIELDS OF COTTON PER ACRE.

We have in each Annual Report continued to publish figures purporting to be acreages of cotton planted. These figures have in the past been useful for comparative purposes as affording some indication of the amount of land devoted to cotton cultivation. For the purpose of estimating yields per acre, however, the figures cannot be used with any degree of accuracy. The chiefs submit each month, during the planting season, a return of the number of plots planted during the month; the plots are of varying sizes and shapes and frequently their boundaries are not demarcated in any way to distinguish them from the plots planted in the following month. On checking these counts and taking the mean measurements of plots a wide difference is found in the mean size even in contiguous areas and as it is impossible to check every area, it is also impossible to determine an accurate mean.

The biggest error occurs in the figures for the Buganda Province. This error arose from an attempt made in 1934 to apply to Buganda the Eastern Province method of sending in acreage returns. Previously the Buganda returns implied the number of plots equivalent to what the growers considered to be an area of one-quarter acre. In the Eastern Province, on the other hand, a plot means an area of planted land irrespective of its size. The Eastern Province method has never been widely understood in Buganda, with the result that numerous returns contain figures of quarter-acre equivalents, referred to as plots, whereas other returns refer to plots varying in size from one-eighth to as much as five acres. Owing to this confusion it has now been decided to return to the old system in Buganda.

People are naturally interested in yields per acre, and, as there are no published figures from which reliable computation can be made, it may be useful to publish the following table which is in effect a departmental estimate of the average yield that could be produced in each district. It should be noted, however, that on our Experiment Stations yields of over 1,000 lbs. per acre are common, and also that we have observed numerous examples of similar yields on native plots which have been tended with proper care.

AVERAGE YIELDS OF SEED COTTON PER ACRE IN LBS.

BUGANDA—			
Mengo	..	..	600
Masaka	..	..	600
Mubende	..	..	475
EASTERN PROVINCE—			
Busoga	..	..	450
Budama	..	..	350
Central—Bugwere	..	..	375
„ —Bugishu	..	..	310
Teso	..	..	260
NORTHERN PROVINCE—			
Lango	..	..	370
Bunyoro	..	..	350
Acholi	..	..	340
West Nile	..	..	325
WESTERN PROVINCE—			
Toro	..	..	300

Cotton Commission.

The year has been one of considerable anxiety for the well being of the cotton industry both on account of increased world production and low prices. It was feared that this combination might have the effect in Uganda of reducing the enthusiasm for growing the crop, and indeed, as will be noted later in the report on the Northern Province, the Banyoro have turned their attention increasingly from cotton to tobacco, and the people of Lango were so discouraged by the low prices that they failed to pick a substantial part of the crop. It is also known that some of the larger growers in Buganda, who normally employ labour for growing cotton, reduced their acreages on this account. Also for the first time in the history of the Uganda cotton industry, there was a substantial carry-over of unsold lint due to unusual competition on the Bombay market.

A Cotton Commission was therefore set up by the Governor with very wide powers to study the situation and to make recommendations. The Commission consisted of Dr. H. A. Tempany, C.B.E., Assistant Agricultural Adviser, Chairman, Mr. E. D. Reynolds, C.B.E., and Dr. J. D. Tothill, C.M.G., Director of Agriculture, Uganda. It sat in Uganda for two months, in August and September, and completed its deliberations in London in November and December. An Interim Report was published on the 4th October making certain recommendations capable of being implemented by the 1st January, 1939, and calculated to give some immediate relief to the growers. The main recommendations were that the railway freight be substantially reduced, that the cotton export duty be reduced from two to one cent per lb. of lint, and that buyers of raw cotton be registered with a view to encouraging honest buying. These recommendations were adopted by the Kenya Uganda Railways Administration and by Government after consultation with the Cotton Association, and have been brought into effect as from the 1st January, 1939. The final report of the Commission was submitted to Government at the beginning of January, 1939.

Coffee.

Exports of coffee increased from 257,938 cwts. valued at £420,481 in 1937 to 280,141 cwts. valued at £327,636 in 1938.

The local value of coffee remained fairly constant throughout the year at about 11 cents per lb. for hulled robusta coffee in Kampala, compared with nine cents at the end of 1937. The rise of two cents was due to reductions in rail freight and wharfing and processing charges, amounting in all to over Shs. 50 per ton. There were no changes in the marketing arrangements.

It was again a disappointing year for coffee growers owing to low prices. In the Buganda Province the larger growers who usually employ hired labour found some difficulty in maintaining their plots in good condition, as prices left little margin for payment of labourers. The smaller growers, however, carried on as usual, although there was little inducement to maintain quality and in many instances picking and preparation were indifferently done. The demand for plants was less than normal due to a combination of adverse weather conditions and a reluctance to expand at present values.

Arabica Coffee.

Bugishu.

1937-38 SEASON.

A record crop of 2,079 tons was produced during the season ended on the 30th June, of which 830 tons were bought by the Bugishu Coffee Scheme and 1,249 tons by the three firms operating in the northern part of the area. Consequent upon the reduction in Brazil's export tax towards the end of 1937, the value of Bugishu coffee slumped more than £10 a ton, and in view of the heavy stocks held at the time, it was inevitable that the Bugishu Coffee Scheme should suffer a loss on the year's working. It is satisfactory to record, however, that the Scheme's loss was small, amounting to less than a third of the credit balance at the beginning of the season. Considerable difficulty was experienced in drying the coffee in view of the heavy rains at the peak buying period, and the heavy over-bearing, followed by the dry weather in 1938, resulted in widespread and severe die-back to the trees in all the low lying areas.

During 1938 the distribution of seedlings, usually in the region of a million per annum, was limited to good cultivators and to those who are just starting, and as a result of this policy only some half-million were distributed. This action was necessary owing to the state of the plots, which, on account of the low prices, were in many cases badly neglected. However, later in the year, following intensive propaganda and much hard work by the officers concerned, enforced by an addition to the Native Authority Rules dealing with the proper care of plots, weeding and mulching improved to a marked degree. In addition, a concentrated pruning campaign combined with the free issue of pruning implements had a marked effect on the condition of the trees. The bug *Antestia* showed a reduction in incidence, but continued to cause considerable damage. An Entomologist started a special study of this pest at the end of the year.

1938-39 SEASON.

Following the previous season's record crop and resultant die-back, cropping was poor except at high altitudes where biennial fluctuation in fruiting is not so pronounced. Production is not expected to exceed 1,500 tons, but even so this figure compares very favourably with the "off-season" of 1936-37 when production was 1,321 tons.

Marketing arrangements this season have been slightly modified to avoid the risk to the Scheme of any variation in world prices between purchase from the grower and ultimate sale. All coffee purchased by the Scheme is now disposed of weekly to the three firms operating in the northern area at a price based on the prices paid to growers during that week. At the end of the year it was evident that the Scheme would show a substantial profit at the close of the season.

ARABICA IN OTHER AREAS.

Owing to the low prices there was little expansion elsewhere in African-grown arabica during the year except in the Kigezi District where over 300,000 seedlings were distributed.

Antestia again caused considerable damage in the Western Province, and in consequence the policy of substituting robusta for arabica in all suitable areas is being continued.

Robusta Coffee.

During a period of low values it is seldom that any effective improvement can be carried out on a farm. In 1938 little progress was made in this direction in the field in Uganda. It is encouraging, however, to record the increasing realisation, by the Baganda in particular, of the need for maintaining the fertility of the soil under a permanent crop such as robusta coffee. Several plots were mulched and banded in certain localities where intensive supervision could be given and, with the proposed change in the method of training farmers, referred to later in this report, it should be only a short time before these improvements become widespread and accepted as normal practices of modern farming.

Nurseries for the production of seedlings were maintained and a few new ones established at additional centres. The demand for plants was less than usual as existing growers were reluctant to expand and the young farmers could not foresee much gain at present values. Yields were approximately the same as in the previous year. Quality, however, was lower on account of the low price which afforded no inducement to the larger grower to expend labour on more careful picking and drying.

INSPECTION OF COFFEE AT CURING WORKS.

The Coffee Grading Inspector inspected 121,336 bags of coffee of which 3,901 bags were rejected, compared with 118,560 and 2,248 bags respectively in 1936. The quantities passed for export and the grades were as follows:—

Year.			Robusta "F.A.Q."	Arabica "F.A.Q."	Undergrade and Triage.	Total.
			Tons.	Tons.	Tons.	Tons.
1937	..	..	9,052	871	651	10,574
1938	..	.	8,220	991	1,465	10,676

It will be observed that there was a decrease of over 800 tons in the amount of Robusta F.A.Q. passed for export and a corresponding increase in the amount of Undergrade and Triage. The greater part of this difference is accounted for by the reduction from 12% to 10% in the number of defectives allowed in Robusta F.A.Q. This reduction was in the first instance voluntarily accepted by the curers to improve the general appearance of the grade, and later it was included in the Coffee Grading Rules.

There was no change in the number of licensed curing works.

An investigation showed that owing to the increased crop the revenue derived from the inspection fee of 35 cents per bag was considerably above the expenditure involved. After allowing for all contingencies it was estimated that a charge of 23 cents would adequately cover all expenses and arrangements were made to effect the reduction to 23 cents from 1st January, 1939.

For some time past it has been clear that the Coffee Board was under a disability on account of having no separate funds of its own. At a meeting of the Board held in May recommendations were made regarding the formation of a statutory Board and the imposition of a cess of Sh. 1/50 per ton on all coffee exported. The Coffee Industry

Ordinance embodying these proposals was enacted to take effect as from the 1st January, 1939, and in future the Coffee Board will have the revenue from the cess at its disposal in connection with its expenses and the development of the industry.

The first joint meeting in Uganda of the East African Coffee Producers' Committee and of the Coffee Trade Association of Eastern Africa was held in August at Kampala.

Tobacco.

GENERAL.

In the Bunyoro district, where fire-cured tobacco is produced, two crops were grown in 1938 as it appeared early in the year that the first crop would be small in view of the dry weather. Conditions later, however, were unusually favourable and a record first crop of 2,323,023 lbs. was obtained. The crop was purchased by the same eight licensees as in the previous year, each being allocated buying areas, on the basis recommended by the Tobacco Advisory Committee in 1936.

The minimum prices were increased by 2 cents per lb. to 29 cents and 19 cents per lb. for Grades I and II respectively. Hail caused considerable damage and it was necessary to pay compensation to growers of Shs. 21,195 from Cess Funds as compared with Shs. 9,206/50 in the previous year. Including compensation the growers received a total of Shs. 596,777/76, an increase of Shs. 286,784/22 on 1937.

The second crop was planted in September. This is small, estimated at 150,000 lbs. leaf, and will be marketed in 1939.

In the West Nile, where air-cured tobacco is produced, a crop of "Amorello" and "Hickory Pryor" amounted to 296,353 lbs. as compared with 277,885 lbs. from a slightly larger acreage in 1937. The crop was purchased as in the previous year by three licensees and here also the minimum prices to growers were raised by 2 cents per lb. to 27 cents and 17 cents per lb. for Grades I and II respectively. Including the payment of hail compensation of Shs. 3,935 the growers received Shs. 73,383/94, an increase of Shs. 13,363/14 on 1937.

Exports of cigarettes and of manufactured tobacco were practically the same as in the previous year but exports of unmanufactured leaf increased by 116,500 lbs. This increase in exports of unmanufactured tobacco is not a true indication of local demand as considerable quantities of leaf were imported at a time when it was feared that the Bunyoro crop would not reach expectations. Later in the year the weather conditions improved and a record crop was produced which enabled manufacturers to increase their reserve stocks by substantial amounts. Total production in 1938 amounted to 2,694,925 lbs. as compared with 1,603,990 lbs. in 1937 and 1,299,956 lbs. in 1936. It is unlikely that local demand will exceed the 2,000,000 lbs. mark for many years and for this reason immediate expansion is not contemplated.

Two new factories for the manufacture of shag and cigarettes were opened, one near Jinja and the other in Kampala.

EXPERIMENTS IN THE WESTERN PROVINCE.

The growing of tobacco on a small but economic scale is proceeding in the Ankole and Toro districts with the chief purpose of training the people in the event of expansion in the future and to provide them in

the meantime with an additional source of income. These areas are experimental areas, as immediate expansion would not be sound policy in view of the uncertainty of future demands.

In the Ankole district the 371 acres planted in September and October, 1937, yielded 59,979 lbs. of fire-cured leaf. The crop was purchased on behalf of Government by an agent at 25 and 15 cents per lb. for Grades I and II, conditioned and baled by the agent, and finally sold by tender. The leaf was disposed of at a profit which was set aside for further tobacco development work in the district, including re-afforestation and the erection of improved markets. A slightly increased acreage was again planted in October, 1938, for marketing in 1939. The main difficulty experienced so far in this district is the incidence of and the damage caused by mosaic disease which spreads rapidly during cold damp weather. The present crop was planted a little later in the year in an attempt to minimise effects of cold weather.

In the Toro district 29 acres of tobacco were grown by 142 people in Mwenge County. This effort was a complete success, an average of 559 lbs. leaf per acre being obtained. The leaf compared well with the Bunyoro leaf both in size and quality. The crop was purchased by Government and sold at cost to three manufacturers.

In the Kigezi district trial plots were planted at numerous centres to determine suitable areas and the effect on the leaf of varying soils and altitudes. Tests are also being conducted on the curing values of different timbers to obtain a complete knowledge of future possibilities in this area.

TOBACCO CESS FUND.

This fund, maintained by a levy of three cents per pound on all leaf purchased from growers in the Bunyoro and West Nile districts, is expended on capital works at the Tobacco Packing Factory at Masindi, the salary of the Tobacco Factory Manager, and tobacco development works and compensation to growers for loss through hail and fire in the two districts. A refund of cess is paid to buyers in respect of exports of leaf tobacco. A Tobacco Cess Board will shortly be appointed to manage the fund which is now of substantial dimensions.

Groundnuts.

Low prices prevailed which, coupled with the fear of famine, resulted in sales being very small. A slightly lower acreage was planted in the Teso district where a proportion of the crop is normally sold but there was considerable increase in acreage in Lango and the West Nile where the crop is grown almost exclusively for food and domestic barter. There were no exports.

Sesame.

Exports of sesame were 819 tons as compared with 1,126 tons in the previous year. Prices were slightly below those ruling in 1937 and in view of the scarcity of food sales were small.

Tea.

The first restriction period ended on the 31st March, 1938, and by that date the growers in Uganda had planted all but 380 acres of the first allotment of 2,000 acres. In all areas the tea plants have flourished extraordinarily well and plucking of these plantings was commenced early in the year. A further allotment of 1,450 acres was granted to Uganda

at the close of the year for planting during the second period which ends on the 31st March, 1943. The year saw the completion of two modern factories, one in Toro and the other in Buganda.

Tea production amounted to 490,358 lbs. as compared with 416,189 lbs. in 1937 and exports were 1,222 cwts. compared with 1,360 cwts.

Sugar.

The two companies manufactured a total of 38,588 tons of white sugar as compared with 28,436 tons in 1937 and exported 11,244 tons as compared with 11,342 tons. The acreage on the two large estates increased from 14,753 to 15,075 acres.

Legislation to control the sugar industry was enacted in April, to give effect to the international restriction scheme in regard to exports. During the present quota year, which commenced on the 1st September, an export quota of 23,950 tons has been imposed upon East Africa of which Uganda's provisional share is 8,400 tons.

Rubber.

Exports were 14,802 cents as compared with 12,698 cents in the previous year. Spot prices for standard sheet declined from 7½d. in January to 5½d. in May. Prices improved in the latter half of the year to approximately 8d. per lb.

Pests and Diseases.

Swarms of the red locust *Nomadacris septemfasciata* were present in varying numbers in the territory throughout the year. Eggs were laid in many areas but, owing to the energetic measures taken by the inhabitants, few bands escaped total annihilation. The migratory locust *Locusta migratoriodes* appeared early in the year in the Northern Province and later many large swarms invaded the territory from the North and West. Egg laying occurred in many areas and at the close of the year hoppers were being exterminated by swatting and ring-burning. The damage caused to crops, although locally severe in a few places, was not so great as to cause serious shortages of food.

Apart from locusts there was no other pest or disease of unusual importance. The *Antestia* bug continued its ravages on arabica coffee in Bugishu and in the Western Province. *Helopeltis* caused more damage than usual to cotton in one area in Busoga but Black-arm and wilt were slightly less in evidence than in previous years.

Soil Conservation.

In the Annual Report for 1937 reference was made to the proposals put forward by the Agricultural Survey Committee, which were accepted by Government, in respect of water supplies, the Teso-Karamoja forest belt, and the measures to be taken to conserve soil fertility and to prevent erosion. Considerable progress was made in 1938.

The Geological Department excavated seven successful reservoirs in Karamoja and a similar number, modified to suit local conditions, was completed in the dry area in Western Masaka. Additional work in this direction will undoubtedly go far towards solving the difficulty of providing water supplies for stock and in reducing erosion in the more arid parts of the Protectorate. The Drilling Section of the Department installed twenty-five productive boreholes in the Chua area of Acholi district and had a record year as regards footage drilled and proportion of successes. A private firm completed twelve productive boreholes in the Eastern Province.

The demarcation by the Forestry Department of the proposed barrier forest on the Teso-Karamoja border, to prevent the spread of desert conditions into inhabited and cultivated country, is nearing completion; 186 miles of boundary have been cut and beacons.

The section of the programme relating to the maintenance of soil fertility and the prevention of erosion in cultivated areas was modified to allow bunding and other measures to be undertaken at more numerous but smaller focal points than the three or four gombololas originally contemplated in order to pave the way for wider co-operation by the cultivators themselves who are showing a keener interest than was at first anticipated.

In the Teso district some 300 acres of cultivated land was bunded at a centre near Soroti by the people themselves. In other parts of the district the growers bunded some 4,000 acres of scattered areas under cotton to check run-off. Later in the year, with the assistance of Government funds, some 300 acres were bunded in Busoga and many acres on a part of a mutalla in Toro. Small areas were also bunded in Buganda, near Bukalasa and on the holdings of owners who have attended short courses there. Progress was also made in persuading growers to erect covered kraals and to apply farmyard manure to the land. It is estimated that some 1,500 acres were manured during the year. The model prison farms were again good examples to the cultivators of the measures advocated.

The ginneries rendered valuable assistance in a first large-scale attempt to influence growers to utilise cotton seed as manure. Many firms undertook to rot down quantities of from 100 to 200 tons of seed in pits at various ginneries and to transport the manure to native plots in the vicinity. Whilst the attempt was not a complete success in all areas it was, however, appreciated by many growers and when the result becomes visible in better crops the experiment will be better understood. This work was done free by the ginning firms and their assistance was much appreciated.

Agricultural surveys of various mitalla were continued when opportunity occurred and nine were completed. The Medical and Veterinary Departments co-operated in regard to nutrition and stock. By this means information is being accumulated which is invaluable for adapting programmes to suit local conditions.

As a result of the visit of the Director of Agriculture to India and South Africa (referred to later in this report) it became clear that we could not do better than adopt an intensive and progressive bunding programme as the first measure for preventing soil erosion. In order to be ready to start an intensive and large-scale programme in early 1939 an Agricultural Officer was sent to Basutoland and a Botanist was sent to the United States of America to study the excellent work being done in those countries. Two Caterpillar diesel tractors with the usual implements were purchased towards the end of the year and a number of Africans were trained as drivers and assistants. The Geological Department assisted by sparing a Topographer to survey the first area selected for bunding in the Teso district.

Since the problem of soil conservation is closely connected with land tenure, an officer of the Provincial Administration has undertaken an investigation of the question in West Africa and he will be specially

seconded to pursue his enquiries locally. A study was also undertaken by an Administrative Officer, of the co-operative societies now in existence in the Protectorate and of the part which such groups can play in effecting improvements in field sanitation.

The results of the investigations undertaken by the Director of Geological Survey and the Conservator of Forests in connection with soil erosion and water supplies were published in Memoir IV of the Geological Department.

Agricultural Education.

Partly as a result of plans completed during the year for reorganizing the educational work at Makerere and partly as a result of the Director of Agriculture's visit to agricultural training centres in South Africa and Southern Rhodesia, it has been possible to review our system of agricultural education. A local Committee was appointed to review the matter and later it was possible to send the Senior Agricultural Officer (Education) to Southern Rhodesia to study the work being done so successfully in the native reserves by the agricultural section of the Native Affairs Department in which African demonstrators play an important part. This review has been extremely useful and has shown that while the two years' course of instruction for cultivators at Bukalasa and Serere has been partly successful, and invaluable in gaining an insight into the problem, yet the method of reaching the masses is proving too slow. Recruiting of students for the two years' course has therefore been stopped. Instead of the two-year course very short courses have been substituted, the intention being to encourage groups of farmers living on the same mutala to farm their own land in the best possible way, the training being given *in situ*.

A new system of recruiting agricultural students for the Mission school at Gulu and the Native Administration centre at Ngetta in Lango has also been devised with the idea of encouraging group settlement of students. An account of this will be found in the report on the Northern Province.

The training to be given to African Agricultural Assistants and African demonstrators has also come under close scrutiny in the course of this review and is at present under active consideration by Government.

Visit to India, South Africa and Southern Rhodesia.

During the first quarter of the year I visited India and South Africa to study soil reclamation methods and to examine methods of giving agricultural instruction to Africans. The visits were most instructive and I take this opportunity of expressing my appreciation to all those people who assisted me in so many ways to see what I wanted to see under such pleasant conditions.

As to soil reclamation, I have already referred to the practical results of the visit. I reiterate here my conviction that soil degeneration is the most important basic problem facing Uganda. Lord Hailey in his magnificent summary of the African problem generally puts the matter neatly in the following words: "A rising standard of living cannot be

based upon a falling level of soil fertility". I returned from India convinced that the only ultimate remedy is to adopt the flat field as a basis and that the simplest and least costly method of achieving this ideal is to contour ridge or bund the whole of the agricultural lands in the Protectorate, commencing with those lands most in need of reclamation.

As to agricultural education, I have referred to the practical results of the visit under the appropriate heading.

During the visit numerous matters of interest to Uganda were noted and an account of some of these is being published as a departmental bulletin. In addition a very useful collection of seeds of improved varieties of food crops, such as gram, pigeon pea and millets, was obtained for trial in the first place on our experiment stations. A collection of Indian agricultural implements was also brought to Uganda for trial.

The Botanical Gardens.

It is not generally known in Uganda that we have one of the most beautiful and instructive botanical gardens in the tropics. The lay-out was greatly improved some years ago as a result of advice tendered by Sir Arthur Hill, the Director of Kew Gardens. Under the immediate and sympathetic control of Mr. A. S. Thomas, ably assisted by Mr. P. Chandler, the gardens have grown into something very beautiful indeed and the rich living collection of tropical and semi-tropical trees, shrubs and plants is now for the most part adequately labelled so that the visitor who is curious can come to know the names of the particular plants in which he or she may be interested.

Animal Husbandry.

The ways of developing animal husbandry were investigated and a decision was reached as to the work to be conducted in the near future and of the appropriate division of functions between the Agricultural and Veterinary Departments to avoid unnecessary overlapping of work. Briefly, the projects are the breeding of a bigger type of working bullock at Serere and of woolled sheep at Kachwekano by the Agricultural Department, and the breeding of a dual-purpose type in Ankole by the Veterinary Department. The study of mixed farming, paddocking, grazing and housing of stock will be continued at certain centres, and poultry will also be kept for distribution to the people. Instruction to stock owners will be co-ordinated to avoid confusion.

CATTLE BREEDING.

A cattle shed was erected at Serere and a water supply laid on from a 300-foot borehole. This makes it possible to proceed with the foundation of a breeding herd of local cattle for the purpose of increasing the stature of working bullocks for the Eastern Province and Lango. The Indian peasant farmer has only one pair of working bullocks and he uses cheap locally-made implements. In Uganda it is a common sight to see six bullocks drawing an expensive European plough. One of the essentials for improving the situation is to produce for general distribution a much larger working bullock, and the programme at Serere has been designed for this purpose.

SHEEP.

The original flock of fat-tailed ewes on Kachwekano Farm in the Kigezi district has improved out of all recognition by culling, and there are now a few animals good enough to put to a merino ram for the purpose of wool production. There are so few good ewes, however, that it was decided to postpone the importation of rams for a further period of six months.

In spite of leopards, parasites and rough pastures I am optimistic about the future of wool as a cottage industry in Kigezi but I have little doubt it will take many years to develop. In Mysore State and in the Bombay Presidency wool production as a cottage industry is making substantial progress and in Basutoland, peopled by Bantu Africans, wool production has now become a major industry.

Agricultural Shows.

At the invitation of the Director of Agriculture, Kenya, this Department staged an exhibit at a Show held in Nakuru under the aegis of the Royal Agricultural and Horticultural Society of Kenya. The Uganda Cotton Association, the Uganda Planters' Association, private individuals and firms, and the leading sugar and tobacco firms co-operated with the Department by providing produce, and their assistance is gratefully acknowledged.

Death of Mr. R. T. Wickham, Agricultural Officer.

In September Mr. Wickham met his death in a car accident on Kachwekano Hill in the Kigezi district. He was given an impressive military funeral and buried in the little graveyard at Kabale. Mr. Wickham was greatly beloved in Uganda not only by his colleagues in the Department but generally throughout the Protectorate. His unfailing kindness, inexhaustible fund of good nature and his love of sport were all qualities of great influence in the field where Africans greatly respected his friendship and readily followed his advice. His loss has been widely and deeply felt.

Farewell.

This is my last Annual Report as Director of Agriculture in Uganda.

Shortly after my arrival the Carter Commission Report was published and the record cotton crop of 204,000 bales was obtained. Since that time much has happened. Production has increased and with it the general level of prosperity. Cotton and coffee have more than doubled; tobacco has come to be an industry; and on the plantation side sugar has become an important industry and tea growing and manufacturing have come to stay. Agricultural education has reached a stage that compares favourably with that reached anywhere else in East and South Africa. The food crop position is immeasurably better than it was ten years ago and important steps have been taken to deal with the soil deterioration problem. The buildings and lay-out of Kawanda have been completed. While agriculture in Uganda is still in a very primitive stage, it is developing on sound lines, with no subsidy of any kind, and can be said to stand firmly upon its own legs.

My part in the development is the one that is played by a cog in a smallish wheel. The other cogs in the same wheel and in a number of larger wheels have done collectively far more than I.

My work, however, has been rendered particularly easy and pleasant by the fact that I have had a loyal, devoted and efficient staff whose work I acknowledge with a deep sense of gratitude. It has been my good fortune also to work on the friendliest terms with my colleagues in other Departments of Government and for their ready assistance and help at all times I am more than grateful.

It falls to the lot of the Director in Uganda to work with the unofficial community on committees and boards and with individuals; in fact a good deal of his time is taken up with committee work. In the nine-and-a-half years of my service in Uganda I have at all times received the utmost courtesy and consideration from the unofficial community and it has been possible to do this work as it should be done in the friendliest possible atmosphere. I take this final opportunity of expressing my deep appreciation for all the help that has been given to me by the unofficial community.

J. D. TOTHILL,
Director of Agriculture.

AGRICULTURAL EDUCATION.

1. MAKERERE COLLEGE COURSE IN AGRICULTURE.

The final, or fifth-year class consisted of eight students, of whom six are Baganda and two are Batoro. From January to the end of September five of them were at Bukalasa and three at Serere doing the second year of their practical course. October and November were spent in revision and a final course of lectures at the Agricultural Laboratories, Kampala. The final examinations were held at Kampala and Kawanda in December. Seven of the students passed and one failed. These seven have been favourably reported on during their "practical" years and they have been accepted for entry to the African Civil Service in Grade D as African Agricultural Assistants. They will begin work in the Department in January, 1939.

The fourth-year class consisted of eleven students. Of these, six are Baganda, three are Banyoro, one a Lango and one a student from Kenya. All these have been well reported on by the officers under whom they have worked at Serere and Bukalasa and they all passed the practical and oral examinations at the end of the year. This year, as last the examinations for the fourth and fifth year classes have been conducted by small boards of examiners so as to arrive at as fair an estimate as possible of each student's capability.

During the fourth and fifth years the students have had experience in district work, in addition to their practical work at Bukalasa and Serere, and have helped to carry out mitala surveys in the neighbourhood of these stations. Discussions and lectures have helped to drive home the lessons learnt from their practical work.

For the first time on record the third-year class—the first year of the course in which the students come under the Agricultural Department for training—has contained no Baganda. This class consisted of five students, two of whom are Teso, one an Acholi and two from Kenya.

2. COURSES FOR CHIEFS.

At *Serere* a number of short courses were held for gombolola and miruka Chiefs. Each course lasted for a fortnight and was planned to give the chiefs an idea of the work and policy of the Agricultural Department and to teach them one or two simple, practical lessons, such as the necessity for the maintenance of soil fertility and means of preventing soil erosion. Most of the demonstrations and lectures were therefore given in the field and on the main farm; the smallholdings and Native Administration prison farm at Serere were all used for this purpose. The following points were included in the various courses:—

- Types of Erosion, Sheet Erosion and Gully Erosion; the role of vegetation in checking erosion.
- Agricultural practice to prevent erosion.
- Demonstrations of bunding with the "clothes horse" level.
- Burning, grazing and resting land in relation to soil fertility.
- Farmyard manure and its application in a system of mixed farming.
- Extension work and the part played by chiefs in this respect.
- The value of trees; tree-planting, etc.
- Cotton pests; cotton legislation; cotton price fluctuations; crop returns; the reasons for mitala surveys.

In connection with soil erosion measures it should be noted that it is neither possible nor desirable to teach the chiefs, in a fortnight's course, how to lay-out and construct bunds. All that is attempted is to explain to them the reasons for this work and to give them an outline of how it is done, so that they can take a sympathetic and active interest in this work when it is carried out in their areas.

The following courses were held:—

- (1) Fortnight commencing 8th August attended by 15 chiefs from Lango.
- (2) Fortnight commencing 20th August attended by 8 chiefs from Acholi (Gulu).
- (3) Fortnight commencing 5th September attended by 11 chiefs from Acholi (Kitgum).
- (4) Fortnight commencing 19th September attended by 5 chiefs from Arua and 4 from Moyo.
- (5) Fortnight commencing 3rd October attended by 23 chiefs from Bugwere.
- (6) Fortnight commencing 17th October attended by 18 chiefs from Bugwere.
- (7) Fortnight commencing 31st October attended by 21 chiefs from the low-lying parts of Bugishu.

The benefit derived by the chiefs from these courses varies considerably. Some of them show a keen interest and much enthusiasm whilst others are unable or unwilling to interest themselves in, or apply their minds to, the subjects under discussion. It will probably be advisable in the future to select the chiefs for these courses rather than to pass them through Serere in indiscriminate batches.

At *Bukalasa* the following short courses for chiefs were held:—

- (1) During September a month's course was attended by twenty chiefs from Kigezi district and from Ankole.
- (2) From mid-October to mid-December a two-months' course was attended by nineteen chiefs from Buganda, Busoga and Bunyoro.

The main farm and the smallholdings at *Bukalasa* provided demonstrations for these classes. Considerable use was also made of the lands of Baganda cultivators in Bulemezi who had laid out their land and who had commenced crop rotations and anti-erosion work.

3. COURSES FOR AGRICULTURAL INSTRUCTORS.

At *Serere* three courses were held:—

- (1) From mid-March to the middle of May a two-months' course was attended by three instructors from each of the following districts: Bugwere, Bugishu, Busoga, Budama and Teso, making a total of fifteen.
- (2) A second two-months' course began on the 6th June and was attended by five instructors from the West Nile district, one from Madi, two from Chua and four from Lango, a total of twelve.
- (3) A six weeks' course began on the 14th November and was attended by eight West Nile instructors and eight instructors from Teso.

The syllabus for these courses, which were of a "refresher" type, was drawn up in consultation with Agricultural Officers of the districts in which the instructors were serving and was designed to lay particular stress on methods of soil conservation. The courses were of a practical nature, time being given to such activities as the laying-out and making of bunds with a home-made level, the planting of trees in the nursery and in the field, the preparation and application of farmyard manure, the prevention of soil erosion by simple agricultural practices, the writing of reports, the identifying of cotton pests, the laying out and measurement of plots and the simple computation of cotton prices. The courses also included lectures by the district Veterinary Officer, the District Medical Officer, the Botanist and the Entomologist. These were all greatly appreciated.

The instructors who attended the courses at Serere this year were specially selected as being likely to derive benefit from them. It is pleasing to be able to report that these instructors displayed considerable interest in the lectures and demonstrations.

At *Bukalasa* a two-months' course was held during May and June, and was attended by nineteen instructors from the Western Province and from the Masaka District of Buganda.

The syllabus of the course followed on the lines of the Serere one and, as in the chiefs' courses, full use was made, for demonstration purposes, of holdings near Bukalasa where extension work is taking place.

4. SMALLHOLDERS' COURSES.

Serere.—There were for the greater part of the year, sixteen pupils in residence on the smallholdings; two from Budama, one from Bugwere, one from Lango and twelve from Teso. One from Bugishu left in the middle of the year to continue his training under the Agricultural Officer at Bugusege plantation in Bugishu. At the end of the year six Teso pupils remained to complete their course in 1939.

From an agricultural point of view the smallholdings have been successful; good crops of cotton, millet (*Eleusine*) and groundnuts have been obtained; the average yield of cotton on the best holdings was 637 lbs. per acre, while the average yield on all the holdings was 545 lbs. per acre.

A reorganisation of the holdings was carried out in order to enable them to be used in 1939 for the training of Agricultural Demonstrators and for short courses for cultivators. One holding has been planned as a model family unit holding and one will be handed over to the main farm for investigational purposes.

All the pupils who completed the course during 1938 have been or are in the process of being established on their own holdings.

A number of visits were paid to ex-pupils who are now farming in Teso.

Bukalasa.—The last of the pupils completed this course during the year.

Follow-up work was carried out in connection with ex-pupils who are now farming on their own and definitely good progress is recorded on the part of eight of these in Mengo district.

The two smallholdings at Bukalasa have been of great value for teaching and demonstration purposes in connection with the courses at Bukalasa. They have also provided invaluable data for extension work that this section has carried out in Bulemezi County of Mengo district. The farms and holdings of the cultivators who have been influenced by this extension work have, in their turn, provided valuable demonstrations for all students and pupils at Bukalasa.

5. COMMITTEE ON SMALLHOLDINGS AND AGRICULTURAL EXTENSION.

In April a Committee was appointed by the Director of Agriculture, with the Senior Agricultural Officer (Education) as chairman, to investigate the working of the present scheme for training young men as farmers on the smallholdings at Bukalasa and Serere and at the Mission stations

at Namutamba and Gulu; to take stock of the progress made and to make recommendations designed to relate this work as closely as may be practicable to the extension work needed to influence the bulk of the cultivators in Uganda in the ways of better agriculture and better living. The Committee submitted its report in July, and, as a result, plans for agricultural extension on the lines suggested have been prepared for putting into operation in 1939.

6. SHORT COURSES FOR CULTIVATORS.

The gist of the recommendations of the Smallholdings Committee having been to shift the focus of instruction from the training centre to the cultivators' own land, it was decided to get into touch with groups of cultivators by having them in to Bukalasa for very short courses, and to extend this by "follow-up" work on their own land.

The first three of such courses were held at Bukalasa in October, November and December:—

(a) Twelve farmers from the gombolola of the Sebwali of Buddu, Masaka district, attended a course at Bukalasa from October 7th to October 22nd. The Agricultural Officer, Masaka, and the African Agricultural Assistant from that district also visited Bukalasa during that time, in order to get to know the men personally with a view to follow-up work later.

(b) Eight farmers from the gombolola of Mutuba VII of Bulemezi attended a course during November; and

(c) Twelve farmers from Kibibi, in the county of Butambala in Mengo district were at Bukalasa from December 3rd to December 17th.

In each case each group of cultivators came from the same or neighbouring villages and in each case these villages had formed a part of a mutala survey.

Anti-erosion measures and the maintenance of soil fertility by adequate resting under planted elephant grass in the crop rotations and the proper treatment of coffee were the subjects of instruction. The cultivators were encouraged to discuss and criticise as they were all men of experience and would have, themselves, much of value to contribute to the course. Visits were paid to Baganda cultivators and their endeavours to adopt correct measures were discussed. The cultivators also had practice in the laying out of small farms for neighbouring landowners.

Follow-up work at the homes of the first two of these groups of cultivators shows that they have evidently been impressed by what they have seen during their course and that they are willing to make improvements on their own lands. Help and advice for them will be very necessary in the early stages, especially at and before planting times.

7. CINEMA.

The cinema supplied by the Bantu Educational Kinema Experiment was in use more or less continuously during July, August, September and November, showing agricultural educational films. The films were shown to all classes at Bukalasa and the unit also toured gombolola headquarters and schools in Bulemezi during those months. More use would have been made of the cinema if the engine had not been so unreliable, necessitating constant repairs.

The audiences, which, at the lukiko headquarters, consisted mostly of cultivators and their families, were obviously keenly interested in the films and asked intelligent questions at the end of each picture.

GENERAL.

The Senior Agricultural Officer (Education) visited Southern Rhodesia during September and the early part of October to study the methods used in that country in training African Agricultural Demonstrators and their employment in the field in agricultural extension work. The visit was of great value and should lead to considerable new developments in agricultural education and extension in Uganda in 1939. On the return journey he visited the Kingolirwa smallholdings settlement scheme in the Tanganyika Territory and also saw the soil reclamation work that has been carried out on the slopes of Kilimanjaro.

The two agricultural students from Nyasaland, mentioned in my report for 1937, completed their course in May and returned to Nyasaland. They were of a very good type and certainly profited by their year's training in Uganda.

Help has been given, whenever possible, to the Education Department in inspecting and giving advice about school plots and in examining various classes of schools at the end of the year.

E. G. STAPLES,

Senior Agricultural Officer (Education).

BUGANDA AND WESTERN PROVINCES.

WEATHER CONDITIONS.

Generally speaking conditions during January and February were hot and dry. These of course favoured the cotton crop which ripened rapidly and well. The rains broke during March which was convenient, as by the end of that month practically all cotton had been harvested.

Rains during April were not good with the result that the May rains were largely used for the planting of food crops. As June and July were unusually dry months little planting was done and it was not until August and September, when effective (but not heavy) rains fell that extensive cotton planting could be carried out. Good rains fell during October (except in the Masaka district) and there were beneficial rains during November.

The main features of the year's weather are, therefore, the very helpful dry spell during January and February and the most untimely (and unusual) dry spell of June and July.

COTTON.

1937-38 CROP.

The following is a summary of the details concerning the 1937-38 crop in Buganda and Western Provinces:—

	Estimated Acreage 1937-38.	Sales.	Average Price Cents per lb.		Estimated Yield per acre.
			Good.	Stained.	
BUGANDA—		Tons.	Shs. cts.	Shs. cts.	Lbs.
Mengo	793,731	85,560	8 99	1 00	241
Masaka	57,161	14,975	7 99	1 08	587
Mubende	27,782	4,901	8 30	1 00	395
TOTAL	878,674	105,436	..	..	269
WESTERN PROVINCE—					
Toro	14,849	1,360	7 63	..	205

The above tonnage is equivalent to a total output of 177,152 bales of lint from the Buganda Province which is a record for this area.

The following table shows the proportion of the crop purchased at ginneries and stores in the various zones.

Zone.	1938.		1937.		1936.	
	Ginneries.	Stores.	Ginneries.	Stores.	Ginneries.	Stores.
Mengo-Entebbe Zone ..	65.09	34.91	66.01	33.99	61.63	38.37
Masaka Zone	55.89	44.11	53.82	46.18	46.30	51.70
Mubende-Toro Zone ..	72.00	28.00	72.00	28.00	70.00	30.00

Owing to dry weather conditions during January and February the grade was good and the picking season was a comparatively short one. The buying season opened on 24th January in both the Buganda and Western Provinces. Prices varied in Buganda from Shs. 8 to Shs. 10 per 100 lbs. whilst in the Western Province where there were tapered prices, depending on the situation of the market, prices were lower.

During the first half of the season cents 50 to Sh. 1 more than the minimum (formula) price was offered in most parts of Buganda but towards the end of the season, when it was realised that the crop was unusually large and when all the firms had bought more cotton than they anticipated, only the bare minimum rates were offered. There was little or no demand for stained cotton and at the price offered (Sh. 1 per 100 lbs.) a certain amount remained unsold especially as buyers could not afford "Kyalo" transport to bring in stained cotton at this price.

1938-39 CROP.

Planting was unusually late. There were good rains during May but these were used largely for food planting which had been retarded on account of the previous dry weather. It was anticipated that there would be ample time for cotton planting during June and July but when these months arrived they proved to be very dry and very little planting could be done. The position looked rather serious at the end of July but fairly good rains during August and September enabled growers to plant up large areas already prepared to receive the seed and the final plantings, although falling short of those of the previous year, were at least up to the average. Whether these late plantings materialise or not remains to be seen but weather conditions to date have, on the whole, been reasonably satisfactory.

The following tables show (a) the estimated total plantings in each district and (b) the percentage planted during each month—with last year's figures for comparison.

(a)				Acreage 1938-39.	Acreage 1937-38.
BUGANDA—					
Mengo	..	..		650,215	793,731
Masaka	..	..		55,593	57,161
Mubende	..	..		20,834	27,782
TOTAL				726,642	878,674
WESTERN PROVINCE—					
Toro	..	..		8,348	14,849

(b) PERCENTAGE OF COTTON PLANTED EACH MONTH.

		May		June		July		August		September	
		1938	1937	1938	1937	1938	1937	1938	1937	1938	1937
BUGANDA											
PROVINCE—											
Mengo	..	6.1	9.9	18.2	27.6	28.0	31.8	33.1	21.7	14.6	9.0
Masaka	..	14.0	31.2	31.0	20.5	30.0	33.2	12.0	11.1	13.0	4.0
Mubende	..	6.8	13.7	16.5	31.7	41.4	38.5	26.8	14.7	8.5	1.4
WESTERN											
PROVINCE—											
Toro	..	..	2.9	13.4	7.4	40.3	35.7	44.6	47.2	1.7	6.8

The present condition of the crop varies considerably according to date of planting. The November rains have greatly benefited the later plantings but in some areas previous dry weather has induced premature flowering and bolling. Generally speaking, however, yields should not be much below average.

The usual diseases and pests are present but not to an abnormal degree.

COFFEE.

The change over from Arabica to Robusta coffee in Ankole and at the lower altitudes of Kigezi, referred to in last year's report, is being continued.

The main feature of the coffee industry during 1938 was the low prices paid to growers. During the first six or seven months of 1937 Kampala prices averaged 9-10 cents per lb. for dried cherry and 18-20 cents for clean robusta. Arabica prices were 10-11 cents for dried cherry and 28-30 cents for clean coffee. From September onwards (with a slight rally during October) prices fell rapidly and at the end of 1937 prices were 4½ cents for dried cherry and 9 cents for clean (robusta) and 8-10 cents for arabica dried cherry and 16-18 cents for clean coffee. This collapse was of course due to events in Brazil. During January and February, 1939, there was, however, a partial recovery in Uganda due to the combined efforts of those concerned with the welfare of the local industry to obtain reductions in curing and transport charges. Reductions in rail freight, wharfage and curing charges amounted to over Shs. 50 per ton—equivalent to over two cents per pound of hulled coffee. In fact, prices rose three cents per pound in respect of robusta hulled, from cents 9 to 12. These fell a little during the succeeding months but rose slightly later in the year.

The ruling prices throughout most of the year were (Kampala prices):—

		Cents lb.
Robusta— <i>Kiboko</i> (dried cherry)	..	5½
„ —Hulled	..	11
Arabica— <i>Kiboko</i>	..	9-12
„ —Hulled	..	18-22

At the moment prices are slightly higher than these.

Progress in coffee cultivation in the various districts is reviewed in the following notes:—

TORO DISTRICT.

Bwamba Area.—In this area, where robusta coffee is grown, the sales for the 1937-38 season amounted to 219 tons. (The 1936-37 season produced 222 tons and the season previous to that 104 tons; a season being reckoned as July 1st to June 30th).

The average price paid was 7.6 cents (for clean coffee) as against 14.3 cents in 1936-37 and 10.0 cents in 1935-36. The buying remained in the hands of one firm who had an exclusive licence.

Owing to low prices very little planting was carried out during 1938. Many plots, particularly the larger ones, have been somewhat neglected, which has been aggravated by the fact that large numbers of people from this area have been employed on the new road which is being built in that part of the district.

TORO—GENERAL.

Tree seedlings were reared and distributed along with the coffee seedlings at most nurseries. In certain areas good progress has been made with mulching and general care of the plots but in others there has been much neglect owing to the trees being in poor condition. This is due, it is said, to *Antestia*, but in the opinion of the Agricultural Officer, *lumbuqu* (*Digitaria* spp.) is more often the cause. Toro native-grown coffee still continues to command a premium of 1-2 cents per lb. on the Kampala market.

ANKOLE DISTRICT.

A change-over was made from the maintenance of nurseries by *luwalo* labour to paid labour as the supply of *luwalo* was dwindling. There are at present 21 nurseries maintained by the Native Administration and four by Government. Seed increase plots for supplying the nurseries are now being established in each county, and the change-over from arabica to robusta coffee (on account of *Antestia*) is being continued.

Organised coffee markets were held and purchases for the past five years are:—

			Tons.
1934	..	..	191
1935	..	..	129
1936	..	..	218
1937	..	..	186
1938	..	..	164

In general prices varied from 15-19 cents although at present 22 cents are being offered.

KIGEZI DISTRICT.

828,109 seedlings of Arabica and 130,812 of Robusta were distributed.

Sales of coffee (Arabica) were:—

			Tons.
1936	..	..	82
1937	..	..	99
1938	..	..	188

The Robusta seedlings are being distributed to replace Arabica in those areas where it is obvious that *Antestia* will not permit of Arabica becoming a paying proposition.

BUGANDA PROVINCE.

Fewer plants were taken from the nurseries than during 1937; 458,000 as against 769,000. This was no doubt due to low prices and to growers realising that it was not wise to increase their areas, for which hired labour might have to be employed, whilst prices were low. The of *Antestia*) is being continued.

larger growers found it difficult to maintain their plots in good condition. Labour was not plentiful and in any case prices left little margin for employing porters. In view of this, picking was badly done on the larger plots. Porters were paid by task work, and berries were stripped off branches whether the coffee was ripe or not. It was found extremely difficult to impress on growers the necessity of looking after their plots and taking care to produce high quality coffee in the face of low prices and this was not made easier by the fact that buyers would not offer higher prices for good dried coffee.

Yields in Buganda were good and conditions for ripening and drying suitable. There was a heavy flowering in August and September and the 1939 crop should be a good one. The 1938 crop was about equal to that of 1937, at 9,000 tons of clean Robusta.

In view of the circumstances good progress has been made in Masaka district with the bunding of coffee plots, but the number of cement drying floors put down in Buganda during the year falls substantially short of last year's figure (73).

The coffee hulleries licensed under the Hulling of Coffee Ordinance continue to turn out good quality produce. This, however, has been achieved at the expense of quantity. Smaller quantities of coffee were bought by these hulleries during 1938 owing to the fact that they have to be more particular as to what they buy.

TOBACCO.

ANKOLE DISTRICT.

The cultivation of tobacco on a small but economic scale in Ankole district was started in 1936. About 300 acres of air-cured leaf were grown in that year, which yielded 63,693 lbs. As the demand for air-cured leaf became rather uncertain in 1937, it was decided to grow fire-cured leaf and 371 acres were planted. Mosaic disease caused considerable damage and yields were not as good as in the previous year. This crop, planted during September and October, 1937, and harvested during December and the first two months of 1938 produced 59,979 lbs. of marketable leaf. Conditions were too dry for successful curing and the percentage of Grade I leaf was only 30.9 per cent.

The crop was purchased by an agent on behalf of Government, and after being conditioned and baled it was then put up for tender amongst the manufacturing firms in Uganda. The leaf was disposed of at a profit, and this profit was set aside to help to further the development of the tobacco industry in Ankole district.

The details concerning the 1937-38 crop are given below together with those of the 1936-37 crop for comparison. The most noticeable difference between the two seasons is the partial failure of the Bunyaruguru crop as compared with the successful 1936-37 air-cured crop. This was almost entirely due to the incidence of disease (mosaic) the spread of which was favoured by cold damp weather. In 1937-38 the position was reversed, the crop in Igara being more successful.

The variety grown in 1936-37 (air-cured) was White Burley, and in 1937-38 (fire-cured) Western and Blue Pryor were used.

	1936-37.			1937-38.		
	Bunyaruguru.	Igara.	Total.	Bunyaruguru.	Igara.	Total.
Total, lbs. ..	39,140	24,553	63,693	26,339	33,640	59,979
Per cent Grade I ..	61.1	54.1	58.5	20.0	39.2	30.9
No. of growers ..	300	800	1,100	600	517	1,157
No. of acres ..	100	266	366	200	170	370
Yield per acre ..	391	92	184	132	198	162
Income per capita Shs. ..	21/00	4/75	9/18	7/40	13/30	9/71

Price per lb., 1936/37: 20 cents Grade I.
10 cents Grade II.

Price per lb., 1937/38: 25 cents Grade I.
15 cents Grade II.

1938-39 CROP.

In an attempt to avoid some of the cold damp weather which appears to be so favourable to the spread of Mosaic disease, planting of the 1938-39 crop was carried out a little later in the year—in October. Western and Blue Pryor were again sown. The policy was varied slightly in that people were encouraged to grow the tobacco near their homes instead of communally on land chosen by the Agricultural staff. This made supervision more difficult but was popular with the people and should result in the plots receiving more attention and the growers showing more interest in the crop. The policy has also been changed slightly so as to concentrate on those areas where good crops have in the past been obtained, and where, as a result of this, the will of the people is behind this new venture rather than to dissipate the energies of the staff on people who are not keen (largely owing to poor crops) but who may later take up the crop when the news of success in other areas filters through to them.

In one area, the new policy resulted in an increase of 200 per cent. in the number of growers. The total number at the end of 1938 was 1,802. Slightly smaller plots have been planted and the acreage is estimated at 407. The majority of the plots on the hillsides have been mulched in contour lines. Cutworms have been troublesome but most of the plants have become well established and prospects are at present fairly good.

A reafforestation scheme, to supply fuel has been started. *Eucalyptus saligna* is to be planted in areas which have been selected and cleared in conjunction with the local Forestry Officer.

Planting-out began in November. For the present, fuel is being supplied by contract to augment the supply in those areas where timber is scarce.

Further expansion of tobacco growing in Ankole is not at present being encouraged. Apart from the fact that much remains to be done before the present growers can be taught to produce leaf up to the Bunyoro standard, the indications are that the position concerning the supply and demand for fire-cured leaf is such that very careful consideration has to be given to the matter before any further expansion can be contemplated.

TORO DISTRICT.

An experimental crop was grown in Mwenge County during 1938. The following is a summary of the details of this venture which was a complete success:—

Number of growers	..	142
Number of acres	..	29
Leaf marketed	..	15,570 lbs.
Average yield per acre	..	557 lbs.
Average cash per grower	Shs. ..	24/74

The leaf was well graded and 57 per cent. of the crop was graded I. In size and quality it was equal to Bunyoro leaf and was favourably commented on by the three local manufacturers who took an equal share of the crop.

The Agricultural Officer did the buying and the prices paid were cents 27 for Grade I and cents 17 for Grade II. The leaf was then divided equally between the British-American Tobacco Company, the East African Tobacco Company and the Nile Industrial Tobacco Company who paid a price equal to the price paid to the growers plus marketing expenses (hessian, porters, insurance, etc.) The cost of transport from Toro was of course borne by these firms.

KIGEZI DISTRICT.

Trial plots of "Western" were planted during March at six centres in Kigezi-Kisoro, Mpalo, Kamwezi, Buyanja, Kichwamba and Kachwekano. The results indicated that good leaf can be grown at Kachwekano, Mpalo and Kamwezi but that conditions are not suitable at the other three places. Further plots were planted during August at Mpalo, Nyakishenyi and Maziba and another plot at Kachwekano in October. Records were again kept concerning the growth and also in respect of the curing which was done both with Black Wattle and ordinary timber from the bush so that a comparison could be obtained.

As another series of plots at five centres was planted out during November, information concerning the possibilities of tobacco growing in Kigezi should be fairly complete.

WHEAT.

TORO DISTRICT.

This crop is at present confined to the slopes of Ruwenzori—in Bunyangabo, Burahya, and a small area in Busongora—at altitudes of from 5,000 to 7,000 feet.

Wheat was gazetted as "declared produce" under the Produce Dealers Rules in May. Markets were held at five centres and the average price paid was slightly above five cents per pound. 99 tons were purchased as compared with 103 tons in 1937. The crop is a good source of revenue to the few people concerned but it is not anticipated that any considerable expansion will take place although there have been several applications to erect a flour mill in the district. Trials are now in progress to test varieties of wheat received from Kenya.

TEA.

The plots of seed-bearing trees at Buwunga (Masaka) and Kakumiro (Mubende) have been maintained, and a certain amount of seed has been collected and used in connection with Departmental trials and experiments.

The fire quarter-acre observation plots in Kigezi district have been maintained but it is as yet too early to draw any definite conclusions concerning them.

A tea variety and spacing experiment was planted out at Kyembogo (Toro).

BEESWAX.

This industry makes no progress. As in the previous year the commodity is marketed under the Native Produce Marketing Ordinance, there being an exclusive licensee in the districts of Toro, Ankole, Kigezi and Masaka. Minimum prices were fixed by the Department and these varied from 68 to 47 cents per pound.

Final returns of purchases are not available at present but the total will be even smaller than that of last year when only about half a ton was marketed.

FOOD CROPS.

The famine which was anticipated in 1938 did not materialize. There were some local shortages, in fact rather severe ones, in parts of the Western Province, which had to be alleviated by the importation of maize meal. The shortages were caused by the partial failure of the first rains and they were most keenly felt in parts of Ankole and Kigezi districts. Plantains became none too plentiful in parts of Buganda but the situation in this province was never in any way serious. Crops sown during the later rains made very good progress and this has been maintained on account of the subsequent good rains which fell in November. Sweet potatoes and Cassava played an important part in bridging the gap caused by the partial failure of the earliest sown food crops.

LOCUSTS.

The Red Locust has been present throughout the year in all districts, but damage to crops has not been serious. There were isolated instances, particularly in the Western Province, where severe damage was caused in certain small localities.

NOTES ON SUBSIDIARY EXPERIMENTS AND DEMONSTRATION FARMS.

KACHWEKANO (KIGEZI DISTRICT).

The fencing of the paddock with "live" fences has been completed and the wide range of material used should give valuable information as to the most suitable method of producing cattle- and sheep-proof hedges. In all instances the cuttings have "taken" extremely well.

The flock of ewes purchased towards the end of 1937 has improved remarkably since it has been on the farm. The improvement is well illustrated when this flock (about 80) is seen side by side with a flock of about 60 which were selected and bought towards the end of 1938. A few additional oxen were also bought in 1938 (the oxen precede the sheep in the paddocks) but even so it is considered that the present paddocks are too large for the present quantity of stock.

It was at one time intended that two woolled rams should be imported from Kenya towards the end of 1938 but this has now been postponed, partly on account of unforeseen difficulties in connection with European staff postings and partly because it is considered advisable to be quite sure that a thoroughly suitable flock of fat tail ewes has been built up before the rams are introduced.

A few deaths occurred among the sheep (in many instances the animals were already weakly) but on the whole this open range management is so far proving a great success.

The following crops were grown or are growing on the arable part of the farm. Tobacco (which did well), pyrethrum (recently planted out and so far doing well), oats, peppermint, cabbages, mangolds, swedes and turnips—all of which have made very good growth. Crops which have not done so well are Tepary beans, soya beans, and pigeon pea (*Cajanus indicus*). Seven imported (from Serere) varieties of *Eleusine* are being grown side by side with the local seed. All the imported seed is obviously producing a better crop than the local (some are very much better) so that this trial should produce results of practical value.

There are also twelve beehives on the farm, six of which are being managed on the local system and six on that recommended by the Department.

Apple trees, plum trees and bamboo have been planted at the top of the farm.

At four other centres in Kigezi district (various altitudes) observation plots of pyrethrum have been planted and a very good stand of plants has been obtained in each case.

KYEMBOGO (TORO).

A tea variety and spacing trial was planted in April and should give interesting results.

Other crops grown on the farm are—tobacco (which yielded over 800 lbs. per acre—Western seed); Wheat varieties from Kenya (poor yields, due mainly to adverse weather conditions, but full observations have been recorded and the trial will be repeated); cotton, four varieties—which are again proving that this part of Toro is not suitable for this crop.

Eleusine.—Strains from Lango and Teso are being compared with the local seed.

Buildings.—A permanent house for the African Agricultural Assistant is being built.

MUKONO (MENGO DISTRICT).

This small farm is maintained with funds mostly provided by the Buganda Government (there is a cotton variety trial which is a Departmental concern).

There is a large coffee nursery and a two-acre plot of *Nganda* and *Robusta* coffee selections. The alternate row mulching in this coffee (with elephant grass) gives an admirable demonstration as to how terraces can be built up by this means.

Seed from the *Nganda* selections at Mukono is supplied to nurseries in Buganda and Western Provinces.

AGRICULTURAL EDUCATION.

The new scheme for school plots is proving more satisfactory in every way and it is also more popular than the old school garden system.

As usual, instructors and chiefs from various districts in both provinces have attended courses of instruction at Bukalasa but an additional and welcome feature has been the attendance of cultivators for a short course at this training centre. In October twelve smallholders from Masaka district spent two weeks at Bukalasa. These men were all from the same mutala and showed a keen interest in all they were shown and taught. The Agricultural Officer, Masaka, reports that this enthusiasm has been retained on their return home and they are putting into practice much of what they have been taught.

African Agricultural Assistants are assisting them to bund their plots and future follow-up work will of course be the most important part of this scheme.

In November, the Agricultural Adviser to the Mengo, Lukiko, persuaded twelve people from Kibibi in Mengo district to attend the Bukalasa course and it is anticipated that groups of cultivators from other mitala will follow in 1939. The course is made as popular as possible and free transport, food and other small amenities are provided. It is not a long course and rather than try to teach them too much, the idea is to get to know them and gain their confidence. Whilst at Bukalasa they are visited by their local Agricultural Officer and African Agricultural Assistant. They are given talks on the major problems concerning soil conservation and taken round to see what is being done on the plantation and on the plots of any progressive smallholders in the neighbourhood. It is hoped that by the time they return to their homes the stage is set, so to speak, for them to listen to and follow the advice of the local Agricultural Officer.

Another line of approach in connection with this smallholdings' extension work was followed by the Agricultural Officer (Education), Bukalasa. With the assistance of some of the younger African Agricultural Assistants the holdings of various chiefs and cultivators were visited and laid out so as to permit of a rotation (which included the prescribed resting period under elephant grass) being followed. The usual advice concerning soil conservation measures was also given and the farms were re-visited from time to time. After a few months, requests for assistance of this kind increased and after about six months nearly 100 people in Bulemezi County had their farms visited and laid out in this manner. This work provided these new African Agricultural Assistants with excellent practical experience and each is now taking over similar work in other counties with the help of the subordinate Agricultural staff which he can also train.

Agricultural Officers visited the various Mission schools in their districts, assisted in the laying out of the school plots and, in certain instances, set and marked the examination papers.

SOIL EROSION AND FERTILITY.

In addition to the work mentioned in the preceding paragraph and apart from that done as part of the normal duties of the Agricultural staff in the districts in connection with soil erosion and fertility measures, the following work has also been done,

UTILISATION OF COTTON SEED FOR MANURIAL PURPOSES.

In conjunction with certain ginneries a scheme for familiarizing cotton growers with the use of cotton seed as a manure was started in 1938. At nine ginneries in Buganda certain firms agreed to allocate from 100 to 200 tons of seed for this purpose. They also undertook to dig the necessary shallow pits and supervise the rotting down of the seed in accordance with instructions from this Department, and to transport the rotted seed and dump it at various places within a radius of three or four miles from the ginnery, on the sides of the roads and as near as possible to land intended for cotton growing.

This was all carried out, and the scheme met with partial success.

In Masaka district, in spite of visits to the areas concerned by the Agricultural Officer and talks to the people by the chiefs, the scheme was regarded with suspicion. Some people were afraid that the seed would germinate and others thought that it would attract insect pests to their plots, particularly the banana weevil. In any case, several excuses were found to save them the trouble of putting the manure on their plots. Of the 200 tons available in this district about 45 tons were taken.

In Mengo district, it was not possible to get much information as to the amounts taken by cultivators. In no instance did they come to the ginneries for it. It was taken in varying quantities from the numerous dumps along all roads round about the ginneries and the African staff and Chiefs assisted in making a count of the number of people who had taken the manure. It would seem that some 670 people took seed from the six centres in Mengo. In no cases did the people carry seed any distance to apply it. If it was near their plots they put it on—partly because they were asked to do so. It is known that a large proportion of the seed went on to coffee plots. This is in itself quite a good thing but not altogether in accordance with what those firms who had contributed the seed hoped for. However, it is reported that in several instances cultivators (who were re-visited several times after they had taken the seed) remarked on the strong growth made by weeds in plots where the seed was applied. Hence, if it is noticed that the coffee is improved the purpose may have been served in that applications to the cotton may also be made.

The most promising results came from Bulemezi where, although the demand was in no way keen, it may be said that the interest caused amongst a few people here and there seemed to make it worth while to continue the scheme next year.

The fact that the ginners were doing the transport for nothing is reported to have made some cultivators suspicious. They say that the fact of this transport being done free of charge would be reflected in the price to be paid for cotton next year.

The scheme was received by cultivators with little or no enthusiasm but this was not altogether unexpected and the fact that some people have applied the manure and a few have noticed that it does have some effect warrants an attempt being made to pursue the matter and repeat the project next year—otherwise this year's effort will be wasted. It would be wrong to discontinue after one year only a trial of this nature where any effect of the manure on crops cannot be observed by cultivators until some months after the application. Transport from the dumps to the

plots presents a problem, however, and it is feared that only those people whose plots are very near to the roads and the dumps will ever use the manure.

A DEMONSTRATION MODEL MUTALA.

Money was received from the "Soil and Water Conservation Measures" vote for the purpose of evolving one model mutala in Buganda and another in the Western Province. Lack of staff made it impossible for the work to be undertaken in Buganda but work was begun on a mutala in Kyenjojo in Toro district.

The Agricultural Officer had previously made an agricultural survey of this area and it was partly for this reason that this mutala was chosen. By having spent several weeks on the mutala survey there he had gained the confidence of the people and all agreed with a certain amount of enthusiasm to his improving the mutala in every way possible.

The whole area is to be banded. Part of this work has already been done by hand labour but the work is being completed by oxen and a plough. A good type of kraal is built and manure will be made on approved lines. The Forests Department is co-operating in the matter of tree planting and trees will be put on the hill-tops and in the swamps. The Medical Department is taking the water supply in hand together with other sanitary measures which are recommended. The individual cultivators will of course be given special encouragement to manage their holdings and plant their crops according to advice given by the Agricultural Department. It is expected that the work will be completed during the first half of 1939 and will cost about £120—about a quarter of which is for oxen which will of course still have at least the same value on completion of the work, provided there are no deaths. The area concerned is some 500 acres and there are 280 people (60 families). This mutala is not a large one but is considered a convenient size on which to try out this scheme. It is also on a main road and in the centre of a well populated area.

MITALA SURVEYS.

Six mitala were surveyed during 1938—three in Buganda and three in the Western Province. Of the three in Western Province one was commenced in 1937, and one, commenced in Kigezi in May, 1938, is incomplete. In Buganda, one of each of the three types (a) balanced population, (b) overpopulated and (c) underpopulated were done and in the Western Province the types were (a) and (b).

NON-NATIVE AGRICULTURE.

A certain amount of tea planting under the Tea Restriction Scheme was carried out at the beginning of the year and plucking on some plantations began for the first time. Satisfactory yields have been obtained, for a first pluck—equivalent to an annual yield of 250–400 lbs. of manufactured tea per acre. The Toro Tea Company's factory at Fort Wavertree began operations in March, 1938, and the Uganda Company's factory at Mityana started in August.

Coffee, which has been under heavy shade in Toro, and therefore to some extent protected from *lumbugu* has, although in a semi-abandoned condition, given higher yields than has been the case for several years.

Tapping of rubber has continued on most estates.

E. F. MARTIN,

Acting Senior Agricultural Officer, Kampala.

EASTERN PROVINCE.

The most notable feature affecting agriculture during 1938 was the severe dry season and the unusually late arrival of the early rains. This was of great advantage in the marketing of the 1937-38 season's cotton crop, but materially postponed the preparation of land for food and economic crops.

The prolonged dry season resulted in the harvesting of a record cotton crop in the Province equivalent to 189,650 bales of lint. (The previous highest output in the Province was 150,085 bales during the previous season). The high yields obtained tended to offset the low prices for seed cotton received by the growers.

The generally feared food shortage has so far not materialized, due, partly, to the good response of the grower to planting up adequate areas of food crops, and partly to the excellent growing conditions in 1938 once the rains had started.

METEOROLOGICAL NOTES.

The year opened with typical hot and dry weather, and, except for a short period of storms in the middle of January, remained the same until the middle of March.

In Teso district, the March rains were inadequate, but in the remainder of the Province the rainfall during the month was good. April saw a further dry spell and it was not until the last week of April that the rains really started. From May to the end of October the rainfall was very satisfactory, although short dry spells occurred during July and August. At the beginning of November the rains ceased suddenly although they normally continue until well into the third week of the month. Typical dry-season conditions prevailed thereafter until the end of the year.

Hailstorms were more numerous than usual, and heavy localized damage to cotton, plantains and other crops was done during September and October.

COTTON.

A. MARKETING OF THE 1937-38 CROP.

The buying season opened on 5th January, in all districts in the Eastern Province, only good raw cotton being marketed until the 26th February. Large quantities of seed cotton were awaiting the opening date, as harvesting conditions during December, 1937, had been excellent. With the unusually heavy crop to be sold, bad congestion occurred at the buying posts, and the attendant evils of rushed buying and selling were all in evidence, and insufficient attention was paid to the grade of seed cotton marketed. By the end of January, half of the total crop had been sold in Teso, Bugwere and Busoga districts.

The following tables give details of monthly sales, yields per acre, prices, etc., of the 1937-38 crop:—

TABLE A.

MONTHLY SALES OF SEED COTTON (IN TONS) PER DISTRICT AND
THE PERCENTAGE SOLD DURING EACH MONTH.

District.	January		February		March		April		Total Sales	Bale equivalent
	Sales	%	Sales	%	Sales	%	Sales	%		
Teso ..	11,804	65	4,244	23	2,000	11	213	1	18,261	31,226
Bugwere ..	10,693	49	7,118	32	3,759	17	435	2	22,005	37,629
Budama ..	4,836	43	3,813	34	2,315	20	385	3	11,349	19,407
Bugishu ..	2,964	44	2,211	33	1,378	21	109	2	6,662	11,392
Busoga ..	27,238	52	16,790	32	7,204	14	1,397	2	52,629	89,996
TOTALS ..	57,535	52	34,176	31	16,656	15	2,539	2	110,906	189,650

TABLE B.

ACREAGE, PRODUCTION (IN TONS OF SEED COTTON) AND YIELDS
IN POUNDS OF SEED COTTON PER ACRE PER DISTRICT.

District.	1937/38.			1936/37.		
	Acreage.	Sales.	Yield.	Acreage.	Sales.	Yield.
Teso	141,061	18,261	290	150,878	18,394	273
Bugwere ..	148,239	22,005	333	133,359	15,706	264
Budama ..	84,590	11,349	301	80,714	8,705	242
Bugishu ..	35,284	6,662	423	47,043	4,440	211
Busoga ..	262,021	52,629	450	188,032	40,524	483
TOTALS ..	671,195	110,906	370	600,026	87,769	328

TABLE C.

AVERAGE PRICES PAID PER 100 LBS. OF SEED COTTON AND
AVERAGE INCOME PER TAXPAYER PER DISTRICT.

District.	Average price			Average income from sale of cotton per taxpayer.
	A	B	C	
	Shs. cts.	Shs. cts.	Sh.	Shs. cts.
Teso	6 70	3 00	1	39 45
Bugwere ..	8 10	..	1	62 00
Budama ..	7 99	..	1	70 00
Bugishu ..	8 10	..	1	30 00
Busoga ..	8 80	6 69	1	95 62

Prices for seed cotton were at a much lower level than for some years past, the last season when comparable prices occurred being the 1932-33 season. There was, however little variation in price throughout the whole marketing period.

The following table shows how the minimum prices for 'A' quality seed cotton as advised by Government varied from zone to zone:—

Zone.	Minimum (per 100 lbs. seed cotton).	Maximum
	Shs. cts.	Shs. cts.
North Teso	6 00	7 50
Segregated areas ..	6 00	7 50
South Teso	6 50	8 00
North Central ..	7 50	9 00
Budama—South Central ..	7 50	9 00
Busoga	8 00	9 50

Small quantities of "ordinary" or intermediate grade seed cotton were purchased in Teso and Busoga districts. By arrangement between Government and the Ginning Pools, a nominal price for stained seed cotton was fixed at Sh. 1 per 100 lbs., there being little or no market demand for this grade of lint. The proportion of stained seed cotton marketed was, however, extremely low, the growers mixing in as much as possible of their off-grade cotton with first quality cotton on account of the low prices received.

The general grade of seed cotton marketed was indifferent, being lowest in Bugwere of the Central district. The low level of prices, coupled with rushed buying, were the main factors responsible.

It is interesting to note the accuracy of the forecasted yields per acre made by the Botanist from the data obtained in the annual traverses in each district. For some years previously, these crop estimates had been considerably higher than the final yields owing to rainy weather during the harvesting season which resulted in a proportion of the crop not being picked. During the 1937-38 season the maximum available crop was picked and the forecasted and final yields agreed very closely.

THE 1938-39 COTTON SEASON.

Preparation of the new season's plots was unduly delayed by the long dry season, and by the necessity for first planting adequate acreages under food crops. The general trend towards earlier planting of cotton, therefore, which was noted in the 1937 Annual Report, suffered a setback due to circumstances outside the growers' control. Bearing the above points in mind, and the fact that prices for the previous crop were at a disappointingly low level to the grower, the acreage planted was most satisfactory, the total plantings being only some 11 to 12 per cent. less than the estimated acreage planted during 1937.

The following table shows the acreage per district planted during 1938, and the percentage that each month's acreage bears to the total:—

District.			May.	June.	July.	August.	Sept.	Totals.
Teso	..	.. Acres	11,322	42,161	47,284	25,545	..	126,312
		Per cent	9.0	33.4	37.4	20.2	..	100
Bugwere	..	.. Acres	878	21,398	49,660	39,002	10,784	121,722
		Per cent	0.7	17.5	40.8	32.0	9.0	100
Budama	..	.. Acres	3,041	16,321	36,057	21,179	7,077	83,675
		Per cent	4.0	19.0	43.0	25.0	9.0	100
Bugishu	..	.. Acres	75	3,358	13,498	7,444	1,117	25,492
		Per cent	0.3	13.2	52.9	29.2	4.4	100
Busoga	..	.. Acres	443	25,960	90,280	110,680	27,139	254,502
		Per cent	0.2	10.2	35.5	43.5	10.6	100

The table shows clearly what a small proportion of the crop could be planted during the optimum months of May and June due to reasons already stated. Planting conditions later were good, the crop made very promising progress, and at the end of October it appeared likely that yields comparable to those of the 1937-38 season's crop would be obtained.

Unfortunately, the rains unexpectedly failed after the first week of November instead of carrying on until the third week, and the last three weeks of the month were completely dry with hot desiccating winds. Crop prospects immediately fell as there was a large amount of late sown cotton which was dependent on a continuation of the rains.

The lack of rain during November was especially felt in North Teso and in Bugwere district, but throughout the Province flower shedding was severe, the growth of the later plantings was checked, and the promise of a good top crop on the earlier plantings frustrated.

In early December, when the crop estimate traverses were made in each district, there was an unusually high proportion of prematurely opened bolls due to the hot dry weather.

PESTS AND DISEASES ON THE 1938/39 COTTON CROP.

With the one exception mentioned below, the crop remained healthier than usual. Angular leaf spot, Blackarm and *Lygus* were to be seen in most areas, but damage caused by them was nowhere serious. Wilt disease also appears to have been less than usual, and was almost invariably reported on cotton plants growing under the shade of trees. The exception to the general good health of the crop was a severe outbreak of *Helopeltis* which occurred over an extensive area in North Busoga, the pest attacking cotton in varying degrees of severity in four gombololas, with an approximate radius of ten miles round Kamuli in Bugabula county. Such an extensive outbreak cannot be remembered in previous years in Busoga district. During 1937, there were isolated plots affected in the lake-shore area in the north-west of Busoga, but on nothing like the same scale, and the areas affected in 1937 show no trace of the pest this year. It is worthy of mention that the country affected by *Helopeltis* this year contains some of the worst eroded and over cropped land in Busoga district.

VARIETIES OF COTTON UNDER CULTIVATION IN 1938.

Seed of the local variety was issued in all areas except in Usuku county of Teso district where the strain S.P.20 was introduced for the first time, the chief merits of this variety being high resistance to Blackarm and superior yielding and ginning out-turn qualities. The local seed in general cultivation is N.17 in Busoga district, and S.G.29 over the rest of the Province. Requisitions of seed for planting purposes were issued on all ginneries during January, on the same basis as the previous year, and germination was very satisfactory.

In the Teso segregated areas, the variety S.P.84 was grown in the Mulondo and Kadunguru peninsulas, but the reserve of seed of this variety was insufficient to plant up with safety the Labori area where S.G.29 was, therefore, used.

Variety plots of different strains of cotton were maintained at ten centres in the Eastern Province. In Busoga district, four strains are being tested against the local seed, and in the other districts three strains.

Lint sampling was carried out as usual in all cotton growing districts, and sample boxes were made up by the Committee at Jinja from eight representatives areas.

COFFEE.

A.—Arabica Coffee in Bugishu District.

REVIEW OF THE 1937-38 SEASON MARKETING.

Final figures of purchases in tons of parchment coffee were as follows:—

	North Bugishu.	South and Central Bugishu.
Cherry purchases (converted into tons of parchment)	258	580
Parchment purchases	991	250
	1,249	830
Total purchases for the district ..	..	2,079 tons.

The annual production in Bugishu for the preceding five seasons is shown below for comparison:—

Season.			Tons of parchment coffee.
1932/33	..	..	734
1933/34	..	..	985
1934/35	..	..	1,378
1935/36	..	..	2,034
1936/37	..	..	1,321

Much difficulty was experienced in drying the coffee owing to the combination of heavy rains at the peak buying period and the shortage of drying facilities. In South and Central Bugishu, cherry purchases had to be restricted, and 123 tons of part dried coffee were sent to Mombasa for finishing off.

In North Bugishu, drying arrangements were still less adequate and resulted in the production of a good deal of musty coffee.

Quality was only fair and there was a higher proportion of defectives and of off-grade coffee than in previous years.

In last year's Annual Report the trial of a grade parchment market was described. The Grade 'A' native prepared parchment was purchased was considerably more attractive in appearance than the bulk of this class of coffee. Samples of this were forwarded to Europe for liquoring reports, and these indicated no improvement over the ordinary grade of native prepared parchment bought in the same area.

NOTES ON CROP CONDITION, CULTURAL METHODS AND PRUNING.

The heavy overbearing and exceptional dry season of 1937-38, together with lack of mulching, resulted in widespread and severe die-back in all the low areas. This, coupled with the sensational fall in price during November, 1937, resulted in the growers becoming pessimistic and badly neglecting their plots. During May, it was decided to launch a campaign with the object of bringing back the coffee into better condition. What was needed was clean weeding followed by mulching, and drastic pruning. A plan to work through the worst affected areas with gangs of paid labour was first proposed. This was later superseded by the more indirect method of intensive propaganda by the Administration and our Department, enforced by an addition to the Native Authority Rules dealing with the proper care of plots. Thanks to much hard work on the part of the local officers concerned, weeding and mulching improved to a marked degree, and, at the end of 1938, the general condition of the average plot is a vast improvement over that which existed at the beginning of the year.

With regard to pruning, the system adopted has been to train selected cultivators in each muruka in proper methods of pruning and to lend them saws, and these men have then pruned trees on their own plots and on those of other growers in their muruka. A charge of one cent per tree pruned was suggested, but this was a matter of private arrangement between the pruner and the owner of the trees. Payment in kind has also often been adopted. A further development has been for the pruner to share in communal work, which is an established custom in Bugishu. In return for pruning his neighbour's trees, he is entitled to assistance in cultivating his crops or in building his house, etc. This is a recent development, and it is yet too early to judge of its success, but the idea has been well received. These methods are designed to overcome the difficulty of lack of money or unwillingness to part with it for such

work. This scheme of pruning, outlined above, was started in South Bugishu, and has since been extended to other parts of the district, with very promising results. 240 pruning saws were purchased by the Native Administration and issued to miruka headquarters for loan to cultivators. This step was considered necessary as the people have not yet reached the stage when they are willing to buy their own pruning saws.

COFFEE TREE DISTRIBUTION.

In order to give growers ample time to carry out proper weeding, mulching and pruning, it was proposed early in 1938 to suspend the issue of any young coffee plants for this year. It was decided later, however, that trees should be issued on a limited scale, and that the rule of refusing issues to bad cultivators should be strictly enforced. This resulted in very few growers of more than two years' status receiving new trees, the greater majority of trees going to new growers and to people who first started coffee growing in 1936 or 1937 on whom it is not yet incumbent to mulch.

Distribution was as follows:—

County.		Number of trees issued.
South Bugishu	..	226,300
Central Bugishu	..	33,800
North Bugishu	..	140,550
Sebei	..	110,700
TOTAL	..	511,350

In the previous year (1937), 1,029,830 trees were issued, so that distribution was reduced by just over 50 per cent. To the end of 1938, a total of 7,969,230 trees have been distributed in Bugishu district since planting commenced.

Weather conditions were suitable for planting in the field except in three gombololas of South Bugishu where dry weather caused some deaths.

For distribution during 1939, one million seedlings have been raised in central nurseries, and planted out into gombolola nursery beds. Allowance has been made for reduced distribution in certain gombololas in future, as it is agreed that no further issues shall be made under 4,500 feet approximately until it is known whether the provision of shade will successfully check die-back at these low elevations. Above this elevation, distribution is expected to be similar to the requirements of previous years.

THE 1938-39 SEASON.

After last season's heavy crop and resultant die-back, cropping has been poor except at the high elevations. At the lower altitudes, many trees have had practically no crop at all. The main flowering was heavy, but the very dry spell during April, which is usually a wet month, resulted in widespread shedding of the young crop which had first set. The estimate for the 1938-39 season's crop was 1,600 tons, *i.e.*, 900 tons in North Bugishu, and 700 tons in South and Central Bugishu. Ripening started about a month earlier than usual in South Bugishu and it was necessary to open some of the pulping stations on the 1st July. The main crop, however, is somewhat late. At the end of December, 1938, 1,619 tons had been purchased throughout the district as compared with

1,740 tons to the same date in 1937. The cherry to parchment conversion ratio is lower than usual this year as also are the milling out-turns. Allowance for these has been made in the price formula.

In North Bugishu, the licensed firms have continued to purchase coffee and to run the pulping stations on the same lines as last year, and the Bugishu Coffee Scheme has operated as usual in South and Central Bugishu. The coffee marketing arrangements of the Bugishu Coffee Scheme have, however, been altered, all coffee purchased by them being sold weekly to the licensed firms on a formula price based on Mombasa market prices. By this means, there is only a short time lag between purchase and sale, and risks of large market fluctuations are avoided.

Arrangements have been made for the erection in 1939 of extra rotary driers at Bubulu, and of a centralized pulping station in the Buluchekke valley.

PESTS AND DISEASES, 1938-39 SEASON.

Antestia.—There was a large reduction in the infestation of this bug which occurred last year, nevertheless the pest is still present in commercially important numbers, and with the small crop to feed on, the damage done remains considerable. Dr. Taylor arrived in Bugishu at the beginning of October to study the pest for three months.

Stephanoderes continued to do a certain amount of damage at the lowest elevations, but does not seem to be on the increase.

Hemileia was prevalent throughout the low elevations, but it appears to be associated with the poor condition of the trees.

Hot and Cold Disease.—What appears to be this disease was found on two plots, one above Makuyu and the other at Bulago.

Eucosma phylloscia.—This was first found in 1935 at Buginyanya. It was again found this year in several coffee plots in the neighbouring gombolola of Bulago.

Bixadus.—This stem borer appears to be increasing, and is quite prevalent on the older coffee plots situated between 5,000 and 5,500 feet.

B.—Robusta Coffee.

Although the Native Administration maintain six nurseries in the southern half of Busoga district for the supply of young coffee plants to applicants, the demand for trees has so far been small, and fewer trees were issued in 1938 than during 1937. It was decided this year to encourage the planting of Robusta in plantain gardens, as is the established custom in Buganda Province. It is anticipated that this will lead to increased plantings in future as the coffee trees will automatically receive mulch and cultural attention together with the plantations, and the method appeals to growers.

It is estimated that some 20 tons of clean coffee were marketed in Busoga district at an average price of five to six cents per pound of unhulled coffee.

In the southern part of Budama district, observation plots of both the erect and spreading types of Robusta coffee are grown, and during the late rains a small number of cultivators were provided with plants of the spreading type to grow in their plantain gardens. There is as yet no coffee marketed in Budama district.

OIL SEEDS.

A. GROUNDNUTS.

The acreage planted showed a slight decrease in all districts, as planting was delayed by the prolonged dry weather. Growing conditions were, however, very suitable, and good yields were obtained in all areas. The incidence of Rosette disease has been very slight.

The estimated acreage planted and the sales in tons are shown below, together with the 1937 figures for comparison:—

District	1938			1937		
	Acreage	Sales—Tons Shelled	Unshelled	Acreage	Sales—Tons Shelled	Unshelled
Teso	32,326	66	0·5	38,940	244	5
Bugwere ..	7,140	56	11·00	7,848	26	5
Budama ..	3,626	Nil	Nil.	4,155	11	7
Busoga ..	15,073	121	62·00	15,321	76	..
TOTALS ..	58,165	243	73·5	66,264	357	17

Bugishu district is not included, as plantings are small, and no surplus is available for sale.

In Teso district, marketing of the crop did not commence until November 7th, buying arrangements being in the hands of a sole licensee as in previous years. The possibility of a food shortage and the low prices paid resulted in very small sales in Teso district; four cents per pound for shelled nuts was the price payable, as compared with $4\frac{1}{2}$ to 5 cents during 1937.

In Bugwere district, 22 licences were taken out for the purchase of the crop and sales show a small advance over the previous year.

In Budama district, no sales took place, the crop being stored against possible food shortage.

In Busoga district, twelve buying licences were issued and marketing commenced in August. The total sales to the end of December were 183 tons.

B. SESAME.

In Teso district, the planting of sesame was also retarded by about a month, but subsequent rains were most advantageous and very satisfactory yields were obtained. In Orungo gombolola in Northern Teso the quality was much above average.

The total area planted in Teso was estimated at 23,892 acres as against the 1937 acreage of 23,968. The price paid was five to six cents per pound, and total sales for the year were 695 tons.

In Bugwere and Budama districts, no definite arrangements were made for the marketing of the crop. The acreage planted in each district was almost identical with that planted during 1937.

FOOD CROPS.

Great efforts were made during 1937 to increase the area under all kinds of food crops in view of the expected ten-yearly food shortage, and that year ended with satisfactory reserves of food in all districts. The dry weather experienced during the first three months of 1938 resulted in very poor germination of *Eleusine* Millet, and widespread replanting was necessitated. Eventually, very good crops of this staple food were harvested. Small local food shortages occurred in a few gombololas of Teso and Bugwere districts before the millet crop had been harvested, and issues of grain from the communal granaries were made in each case. In August also, an issue was necessary to people in two mirukas in Bukedea county, but local reserves were adequate to deal with this.

Every encouragement was given towards the planting of larger acreages than usual of root-crops, beans and cow-peas. Growing conditions between April and October were ideal for all crops, but the dry spell which set in at the beginning of November has jeopardized the sweet potato crop which forms one of the most important food crops planted during the rains. There are, however, with the exception of one district, larger reserves of cassava than usual in the ground.

FERTILITY AND ANTI-SOIL EROSION WORK.

Good progress continued to be made in Teso district. In the vicinity of Soroti and Gweri gombolola narrow based bunds were made in about 300 acres of cultivated land, chiefly under cotton, the lines of the bunds being marked out by the African Agricultural staff and the earthing up being done by the owners of the plots. Some 25 of the above-mentioned 300 acres were bunded with a locally made "Improved Nicholson's Grader", a wooden grader with steel runners drawn by eight oxen. These bunds have proved to be thoroughly satisfactory and have withstood heavy rains without damage. A supply of these graders is being made at Soroti for use in other districts. At Rappayi, where 15 acres of land were bunded in 1937 and the ridges planted with elephant grass, it has been noticed that this grass is having a shade effect on the crops on either side of the bund. As this method of making the bunds permanent is not favoured by the people, it is being discontinued, and the planting of low growing grasses encouraged. In other parts of Teso district, the agricultural instructors have assisted cultivators to put small bunds in their plots to check run-off. It is estimated that some 4,000 acres have been treated in this way.

Teso cultivators are now beginning to show a definite interest in anti-erosion methods, and the way has been paved for the larger scale bunding by mechanical units which is due to commence next year. An Agricultural Officer was sent to Basutoland towards the end of the year to familiarize himself with the methods which have been successfully employed there. Two Caterpillar tractor units have been ordered for the work, and these had both arrived at Serere Experiment Station by the end of the year. The Director of Geological Survey lent the services of the Topographer during November and early December to advise on the laying out of bunds, and a Plantation Manager, who has also been seconded for the bunding programme, to commence in 1939, has been working with him at Serere.

Funds were provided by Government during the second half of the year for fertility and anti-soil erosion work in general. In the Eastern Province, this money was devoted partly to the making of contour bunds in selected areas, for demonstration purposes, and partly to the encouragement of the use of kraal manure. With regard to the former work, three selected agricultural instructors from each district attended a two-months' course at Serere during March and April for instruction in soil fertility and simple anti-erosion work, and in the use of contour levels. During the last four months of the year they were put in charge of simple bunding work in each district. Some 300 acres were bunded in this way in Busoga district, and smaller areas in Bugwere, Budama and Bugishu districts. Great care has been taken to bund land for volunteers only, and the work has created a good deal of interest in Busoga. It is proposed to continue work on the same lines next year, after which it is hoped that cultivators will commence to take up the idea on their own. Throughout the Province, a simple type of locally made level costing Shs. 10 to Shs. 15, has been utilized and has proved quite satisfactory.

With regard to the use of manure, considerable progress has been made in Teso district, and it is estimated that manure from open cattle kraals and goat manure was applied to some 1,500 acres of land during 1938. Cultivators possessing covered cattle kraals continued to use the better prepared manure. An increase in the use of covered kraals in Teso district is largely prevented by the lack of suitable timber for building them. To overcome this, a mud-pillared type of kraal is being used with success.

In Bugwere district, five new covered kraals were erected so that there are now seven in this district. The spread of the use of this type of kraal is rendered very difficult by the laziness of the people, and by the suspicion with which any new scheme of this kind is regarded.

In Busoga district, six covered kraals were erected free for applicants in different areas during the last few months of the year. A great handicap to the development of mixed farming methods in Busoga is the fact that cattle are, in nine cases out of ten, kept miles away from the owner's farm, and until this ingrained custom can be altered, progress will be very slow.

One ginning firm in each of Teso, Bugishu and Budama districts, two in Bugwere and four in Busoga, agreed to rot down 100 tons of cotton seed at their ginneries for distribution of the manure to neighbouring growers. There was a great demand for the resultant manure in South Teso, but elsewhere, it proved to be extremely difficult to persuade growers to apply it to their land, even though the manure was dumped close to the plots for them by lorries. This work was done free of charge by the ginnery firms, whose help was much appreciated.

PRISON FARMS.

The Prison Farms described in last year's Annual Report have been carried on with success. In Teso district, the six farms had a successful year, being well managed by the African staff. Excellent crop yields were obtained, *e.g.*, *Eleusine* Millet has yielded at the rate of one ton per acre on some of the farms, and groundnuts at the rate of 1,600 lbs. per acre. These farms are definitely fulfilling their purpose, as they are providing

all the food requirements of the prisoners, plus a reserve of food, and are acting as useful demonstration centres for bunding, manuring and other operations.

In Bugwere district, the farms at Bukedea and Kamuge have been well maintained and good crops were harvested.

AGRICULTURAL EDUCATION.

An Agricultural Officer (Education) was stationed at Serere throughout the year. Courses of training were given to fifteen selected instructors from this Province, to forty-one chiefs from Bugwere district and to smallholders from different districts. In addition, six selected chiefs from Busoga district attended a two-months' course at Bukalasa.

Seven smallholders, six from Teso and one from Budama, left Serere during October to commence farming on their own land.

With a few exceptions, the smallholders who have up to now undergone the two years of training at Serere have not made a success of their holdings after returning to their homes. A variety of reasons are held to be responsible, foremost amongst them being the insecurity of land tenure, and an atmosphere of suspicion on the part of the smallholders' neighbours. It was decided by the Director that the present smallholdings at Serere, with the exception of two, should be discontinued as from 1939, and a new scheme of agricultural extension work initiated.

GENERAL NOTES.

(a) MUTALA SURVEYS.

Completed reports of the five surveys made during 1937 were received, and new surveys being made this year are of Willa in Teso district, Mpongi in Bugwere district, and Buwasyu in Bugishu district. A mutala survey was commenced in Busoga district, but owing to the absence of an Agricultural Officer this had later to be abandoned.

(b) LOCUSTS.

The year opened with considerable numbers of mature Red Locusts present in Busoga and South Budama districts. During April and May these spread into the other districts of the Province and eggs were laid in many localities during June. Energetic control measures were instituted as soon as the hoppers were sufficiently large enough to deal with. Slight damage was done to cotton, plantains, *eleusine* millet and cassava both by flying swarms and by hoppers. Hoppers that escaped destruction attained the winged stage in small numbers, but by the end of the year numbers were inconsiderable, a few swarms persisting in the lake shore areas of North Busoga and in the uninhabited country in North Bugishu.

A few swarms of the Migratory Locust were reported from Usuku and Kumi counties of Teso district during August, having come from Karamoja district, but they did no damage. The subsequent movements of these swarms are uncertain as no further reports were received about them.

N. S. HAIG,

Senior Agricultural Officer, i/c Eastern Province.

NORTHERN PROVINCE.

WEATHER CONDITIONS.

During the first six months of the year weather conditions generally throughout the Province were so abnormally hot and dry as to give rise to fears of a widespread famine. From July onwards conditions improved sufficiently to allay anxiety on the score of famine but rainfall continued for some time to be erratic and local in character with a marked tendency in all districts to violent storms. During the last quarter of the year weather conditions became more settled in all parts of the Province and the weather during this period can be described as normal.

The 1938 season on the whole was probably the most difficult and tricky from the point of view of agriculture that the Northern Province has experienced for many years.

COTTON.

As in previous years this report deals in part with two cotton crops, namely harvesting and marketing of the 1937-38 crop and the growing period of the 1938-39 crop.

1937-38 CROP.

Harvesting.—In Bunyoro, Lango, East Acholi, West Nile and Madi harvesting was completed early in March. In West Acholi, where growers were slow to pick their cotton, harvesting extended to the end of March.

Marketing.—The buying season opened in all districts in the Northern Province on the gazetted date, the 5th January. In South Lango marketing was practically completed by mid-March except in Kyoga county. In North Lango, with the exception of Moroto county where the bulk of the crop had already been marketed by mid-March, marketing extended into April.

In East Acholi and in Madi marketing was practically complete by the end of March and in West Acholi by mid-April. In Bunyoro, where a number of growers held back for a rise in price towards the end of the season, and in the West Nile, where a system of rotational markets is in force, marketing extended into May.

The buying season closed officially in Lango on the 9th April and in Acholi, where a fortnight's extension was granted, on the 23rd April. In Bunyoro, where the date originally fixed was the 23rd April, the season was subsequently extended to the 7th May.

Buying opened at prices ranging from Shs. 7/50 in West Acholi to Shs. 8/50 in Bunyoro. Prices remained consistently low throughout the season.

Quality varied somewhat in all districts during the season, the staple of the earlier pickings in general tended to be weak and in some areas, notably East Madi and Acholi, to be short. The quality, however, tended to improve as the season advanced. Grade in all districts was well maintained.

Production.—The early promise of the 1937–38 crop was fulfilled as regards yields. Acre yields well above average were obtained in all districts. Growers' great disappointment over the low run of prices, which in the estimation of many of them were such as to make it scarcely worth their while to pick their cotton and undertake the labour of getting it to market, combined with the relative superabundance of the crop, resulted in picking being generally backward throughout the season. Except in Bunyoro, the West Nile and Madi, where picking and marketing were on the whole well done eventually, considerable quantities of unpicked cotton were allowed to spoil in the field. Further loss of crop occurred in the abnormally high proportion of cotton which was burned with the plants at uprooting time.

Despite these adverse factors the crop was a record one for the Province as a whole.

Details of production by districts as disclosed by the marketing returns together with those of the previous seasons for comparison are set out in the following two tables.

(a) QUANTITIES PURCHASED, 1937–38, AND PRICES PAID.

District	Purchases. (Tons: raw cotton).			Average Prices.		
	A	B	Total	A	B	Average.
				Sh. cts.	Sh. cts.	Sh. cts.
Lango	15,089	1,630	16,719	7 20	1 18	6 61
Bunyolo	3,121	483	3,604	7 31	1 49	6 53
Acholi—West ..	2,839	220	3,059	6 57	1 00	6 17
„ —East	3,666	259	3,925	7 08	1 00	6 68
West Nile	2,116	323	2,439	6 82	1 50	6 11
Madi	715	158	873	6 90	1 50	5 92
TOTALS	27,546	3,073	30,619	..	..	..

(b) COMPARISON OF PRODUCTION: THREE SEASONS.

District.	Production (Tons: Raw Cotton).		
	1937–38.	1936–37.	1935–36.
Lango	16,719	9,867	10,122
Bunyoro	3,604	2,802	2,953
Acholi—West ..	3,059	2,338	3,110
„ —East	3,925	2,671	3,946
West Nile	2,439	1,395	1,726
Madi	873	755	903
TOTALS	30,619	19,828	22,760

Summary.—The outstanding features of the 1937–38 crop were high yields and low prices. Total production exceeded that of the previous seasons by a wide margin. The high yields offset the low prices to some extent but the crop as a whole was a disappointing one from the producer's viewpoint.

1938-39 CROP.

Adverse weather conditions in the first half of 1938 seriously delayed the planting of food crops and this, in its turn, delayed the earlier cotton plantings in all districts. With the advent of more favourable conditions in July the leeway of cotton planting was rapidly made up and, although the crop as a whole was got in much later than in the previous season which was a particularly early and favourable one, the proportions of the crop planted by the end of July and August successively correspond fairly closely with the means over a period of years for these periods.

The total acreage planted in the Province is 183,294 acres. The acreage attained, although falling short by some 11,000 acres of the record 1937 acreage, is nevertheless highly creditable considering (a) the effect which last season's low prices must inevitably have had upon the producer's outlook and (b) the difficulties occasioned by the failure of the rains in the earlier part of the season and the grave pre-occupation of the populace concerning its food supply at the time preparations to plant cotton were being undertaken.

Details of the distribution of the crop by districts together with the acreage figures of previous years for comparison are set out in the following table:—

District	Acreages			
	1938	1937	1936	1935
Lango	104,566	102,296	84,784	90,689
Bunyoro	16,759	18,876	24,016	24,626
West Acholi	21,866	20,297	22,750	22,200
East Acholi	23,706	32,025*	25,259	24,000
West Nile	11,137	15,845	11,700	10,800
Madi	5,260	5,040	5,672	5,500
TOTALS	183,294	194,379	174,181	177,815

* Acreage was probably over-estimated.

Assuming the correctness of the acreage figures it will be noted that the upward tendency of the Lango acreage has been maintained. The decline in the Bunyoro acreage is attributable to last year's low cotton prices and to the increasing popularity of tobacco as a cash crop in that district.

The usual pests and diseases are present in the crop in all districts but nowhere in such proportions as to occasion any anxiety. The incidence of Blackarm was somewhat higher than normal during October in Lango and parts of West Acholi but the plants later made a good recovery. Except in Bunyoro boll-shedding is less evident than usual.

In a normal season the best yields in this Province are obtained from early-planted cotton. The extent to which late planting will affect production is difficult to assess but yields per acre in the region of average are expected in all districts.

Owing to the lateness in planting there was little cotton open by the end of November. Harvesting on a fairly extensive scale, however, commenced in December in all districts.

TOBACCO.

BUNYORO DISTRICT.

On the basis of planting returns received the tobacco acreage was estimated at 3,400 acres but subsequent events indicate that little reliance can be placed on this figure and that the actual acreage may have been in excess of 4,000 acres.

The failure of the official planting returns to disclose the true extent of the cultivation is attributed to the planting, by cultivators who for reasons of their own did not wish to disclose their resources, of plots in out-of-the-way sites in the bush of which the chiefs and instructors concerned in the preparation of the returns had no cognizance.

The large increase in the acreage is believed to be due to the growers' reaction to last year's low cotton prices. At present-day price levels tobacco is a much more profitable crop than cotton and its popularity in Bunyoro may for that reason be expected to increase so long as the price disparity remains.

Weather conditions during the initial stages of the crop (April and May) were distinctly unfavourable and heavy losses occurred. Apart from hail storms, which were abnormally frequent throughout the season and caused widespread damage, conditions during the subsequent stages of the crop, including the curing period, were unusually favourable and resulted in a record crop.

The crop was again free from any serious pests or disease.

Marketing.—Buying commenced on the 22nd August and was completed on the 22nd November. The large quantities of leaf handled in the initial stages of marketing taxed to the uttermost the limited amount of storage accommodation available and buying could not, for that reason, proceed as rapidly as it might otherwise have done if more accommodation had been available. With the exception of one market, nevertheless, buying had taken place at all centres by the end of September thereby enabling all growers to dispose of their leaf as it became ready for marketing.

The minimum prices to be paid to growers were raised by 2 cents per lb., making prices 29 cents and 19 cents per lb. for No. 1 and No. 2 grades respectively. As in previous years buyers were required to pay a cess of 3 cents per lb. on all tobacco purchased.

One firm opened buying at 32 cents and 22 cents per lb., while all other buyers opened at the bare minimum prices. Although the high prices were paid for a few days only the news of them led to a considerable movement of tobacco into the areas in which they were paid and the movement persisted to some extent throughout the season even after the firm concerned had reduced their prices to the minima.

Eight licences were issued under the Native Produce Marketing Ordinance for the purchase of the native-grown crop in Bunyoro. The total purchases were as follows:—

		Lbs.
Grade I ..	..	1,331,841
Grade II ..	..	991,182
TOTAL	..	2,323,023

The average price obtained by growers over the whole crop was 24.77 cents per lb. as compared with 22.69 cents per lb. in 1937. The total cash value of the crop to the growers (including compensation paid

for hail and fire damage) was Shs. 596,777/76. This represents an increase of Shs. 286,784/22 on last year when the cash value of the crop to growers (including compensation paid) was Shs. 309,993/54.

The quality of the crop, as disclosed by the relative proportions of the two grades, was slightly better than last year.

	1938.	1937.
	%	%
No. 1 Grade ..	57.33	56.88
No. 2 Grade ..	42.67	43.12

Hail and fire compensation was paid at the same rates as in 1937. The amount paid out this year was Shs. 21,195 as compared with Shs. 9,206/50 paid in 1937.

AUTUMN CROP.

Owing to the doubtful appearance of the early-sown crop in May when it was thought production would not exceed 800,000 lbs. it was decided that a second crop, to be planted in September, might be grown by anyone wishing to do so. The object was to avoid, so far as possible, any shortage of leaf for local manufacturers and the necessity for importing leaf. The crop was limited to a few well-favoured areas where late-planted tobacco is known to do well.

Nurseries were sown during the second week of July and planting-out took place in the second half of September. The area planted is estimated at 487 acres.

Cutworms occasioned heavy damage at planting-out time and conditions during September and October were rather too cool and wet. The crop generally has not made satisfactory progress and leaf resulting from it is likely to be below average both as regards quality and weight.

Harvesting of the crop commenced during the last ten days of November and the leaf is now in progress of being cured.

WEST NILE DISTRICT.

The acreage planted is estimated at 1,400 acres as compared with 1,500 acres planted in 1937. The number of growers, however, was 4,167 this year as compared with 3,236 in 1937.

Sowing of beds commenced on the 14th February and became general on the 21st February. Good germination resulted at all centres except at Adumi where neglect of watering necessitated re-sowing.

Apart from minor difficulties occasioned by lack of rain at planting-out time in early May and hail damage, which was excessive, the season was without incident. The presence in the district of a Plantation Manager devoting practically the whole of his time to supervision of the crop secured a considerable improvement in all cultural operations connected with the crop. Barn accommodation on the whole was slightly more adequate than in previous seasons and losses in curing correspondingly less.

Two varieties were grown, viz., *Amorello* over the greater part of the area and a small quantity of *Hickory Pryor* to meet the requirements of one licensee. All tobacco in the district in 1938 was air-cured.

Marketing.—Marketing began on the 26th September and was completed by the 31st October.

Three licences under the Native Produce Marketing Ordinance were issued for the purchase of the West Nile crop. Details of actual purchases in relation to acreage-allocations are not available but the total amount

purchased by all licensees was 296,353 lbs. as against 277,885 lbs. marketed in 1937.

The average yield per acre in 1938 was 212 lbs. as compared with an average yield per acre in 1937 of 185 lbs. and an average over the period 1932 to 1937 of 225 lbs. Prices paid were 28 cents and 18 cents per lb. for No. 1 and No. 2 grades respectively being two cents per lb. higher than in 1937 for each grade. The average price per lb. obtained by growers over the entire crop was 23·4 cents as compared with 21·6 cents in 1937 (20·4 cents in 1936).

The total cash value of the crop to growers this year, including hail and fire compensation paid, was Shs. 73,385/94. This represents an increase of Shs. 13,363/14 on 1937 when the value of the crop to growers was Shs. 60,020/80.

The total amount paid in respect of hail and fire compensation was Shs. 3,935 being the equivalent of 78·7 acres totally destroyed at Shs. 50 per acre.

The quality of the crop as disclosed by the proportions of the two grades was approximately the same as in 1937.

		1938.	1937.
		%	%
No. 1 Grade	..	54·6	56·0
No. 2 Grade	..	45·4	44·0

TOBACCO PACKING FACTORY, MASINDI.

1937 Crop.—Packing of the 1937 crop was completed on the 24th December, 1937, and the factory closed down for the season a few days thereafter. The total amount packed during the season was 667,357 lbs. (packed weight).

1938 Crop.—The factory opened for the reception of leaf on the 24th August, 1938.

On the same day a fire occurred in one of the drying rooms in the course of which approximately 6,000 lbs. of leaf was destroyed and considerable damage done to two drying rooms.

In spite of this, however, the factory was working at full pressure until the end of the year. The present packing season is expected to extend to the end of January, 1939, and the amount of leaf passed through the factory to be in the region of 1,000,000 lbs.

As in previous years an inclusive charge of 1·34 cents per lb. is being made for baling and storage.

A small hydraulic press was installed in place of one of the hand-presses previously in use.

Comparative figures for the amount packed at the factory in the six seasons are given below:—

Season		Amount packed Lbs.	Revenue Shs.	Expenditure Shs.	Cost Cents per Lb.
1932-33		105,900	1,897/40	1,580/08	1·492
1933-34		112,492	2,008/75	1,681/66	1·495
1934-35		644,117	8,626/60	5,408/42	0·840
1935-36		549,649	7,181/17	4,672/98	0·855
1936-37		679,457	9,356/67	4,772/81	0·703
1937-38		667,357	8,942/52	4,644/05	0·696

COFFEE.

Little interest was taken by cultivators in coffee in Bunyoro. The low prices prevailing did not encourage further planting and a fair acreage of young coffee was abandoned during the year. With the example before them of a large number of European-owned estates on which attempts to grow coffee have failed it is not surprising that the outlook of the cultivator towards this crop is one of distrust. Two alternative cash-crops, tobacco and cotton, are available and while the price of the former remains at its present lucrative level it is difficult to devise any means whereby interest in coffee can be stimulated.

In the West Nile excessively hot dry conditions in the period November, 1937, to March, 1938, occasioned a serious set-back to coffee. In some areas many trees died. With the advent of the rains in March, however, all coffee which was not completely moribund made a recovery which was nothing short of spectacular.

As a result of a propaganda campaign carried out by this Department a serious effort has been made by cultivators to mulch their coffee. By the end of the year it is safe to state that some 95 per cent. of all coffee in the district had been mulched.

Up to the present the effort entailed in mulching has not proved popular and the benefits are, of course, not yet apparent to plot owners.

The total acreage under Arabica in the district at the end of the year is estimated at 190 acres. This represents an increase of some 10 acres only on last year's figures. The amount produced for sale during 1938 exceeded the earlier expectations.

Marketing of the crop took place at one-day markets at Payida, Warr and Logiri in the period 28th to 30th April. Prices paid per lb. were: Clean coffee, 12 cents; parchment, 8 cents; dry cherry, 4 cents. The total quantity marketed, together with last season's marketing figures for comparison, was as shown below.

			1938.		1937.	
			Amount (lbs.)	Price (cts. per lb.)	Amount (lbs.)	Price (cts. per lb.)
Clean Coffee	..	..	37,417	12	4,350	18
Parchment	..	..	1,807	8	1,652	15
Dry Cherry	..	..	6,594	4	81	10

The total cash value to the growers of the 1938 crop was Shs. 4,898/36 as compared with Shs. 1,038/90 received in respect of the 1937 crop.

OIL SEEDS.

GROUNDNUTS.

The general position as regards groundnuts in the Northern Province remains as described in my Annual Report, 1937.

In Lango under the "bunch groundnut seed increase scheme" approximately 74 tons of seed derived from Native Administration seed

increase plots in 1937 was issued in March and April. Of the seed issued approximately 60 tons went direct to cultivators and 14 tons to Native Administration seed increase plots.

The extent to which the bunch groundnuts is tending to displace the spreading type in the district as a whole is difficult to assess in the absence of separate returns in respect of the two types. The bunch type, however, is very popular with the Lango and it may safely be assumed that small quantities of these groundnuts are now in the hands of a large number of cultivators.

The acreage of groundnuts as a crop in Lango increased from 7,735 acres in 1937 to 8,351 acres in 1938. Average yields were obtained and little or no disease was apparent.

In the West Nile, where, as in Lango, there is no organised marketing of groundnuts and the crop is grown exclusively for food and domestic barter, the acreage under the crop is believed to be extending rapidly. No figures for 1938 acreages are available yet but the increase may be as much as from 7,500 acres in 1937 to 20,000 acres this year. Propaganda undertaken in connection with the threatened food shortage in the first half of the year is mainly responsible for the increase but the growing popularity of groundnuts as a food is also a factor.

SESAME.

Acreages under this crop declined somewhat in Bunyoro and increased in the West Nile, Lango and Acholi. The decrease in the Bunyoro acreage, a considerable proportion of which in normal years is put in with the definite object of marketing the produce (as opposed to the marketing of a definite surplus only), was due to unfavourable weather conditions and to anxiety regarding food supplies. In Acholi, although no planting returns are available upon which the extent of the increase can be determined, the increase in the acreage under this crop is nevertheless such as to constitute one of the most outstanding agricultural facts of the year. In this connection it appears fairly safe to assume that under the difficult weather conditions prevailing at planting time a certain amount of land prepared for cotton was subsequently planted with sesame. The relatively high prices paid for sesame in Acholi last year, which were such as almost to bring the crop into direct competition with cotton on a cash return per acre basis at last year's cotton prices, is also probably a factor with a strong bearing on the increase.

Details of the sesame acreages in the two districts in the Province from which planting returns are available are:—

	1938 (Acres).	1937 (Acres).
Lango	62,139	52,542
Bunyoro (Early sown) ..	8,611	11,300
Bunyoro (Late sown) ..	1,645	2,009

The quantities of sesame purchased under licences in 1938 together with the 1937 figures for comparison, were:—

District.	Quantities purchased, in tons.	
	1938.	1937.
Lango	746	637
Bunyoro	34	135
Acholi	463	524
Madi	7	6
West Nile	215	147
TOTALS	1,465	1,449

Prices paid ranged from four cents in Madi to slightly over six cents in Bunyoro. The striking decline in the amount of sesame offered for sale in Bunyoro is due to the circumstances detailed earlier in this report and to the fall in prices. Buying opened in August at seven cents, but the price quickly fell to six cents and remained at that figure to the end of the year. This compares with eight cents per lb. being paid in the same period in 1937.

In all districts of the Province sesame remains a popular article of food. The quantities marketed represent a very small proportion of the amount produced, by far the greater part of the crop being retained for food.

MAIZE.

The demand for maize by local planters and ginners in Bunyoro has continued and prices obtained by growers have varied from Shs. 6 to Shs. 8 per bag of 200 lbs. net (or three cents to four cents per lb., if, as is frequently the case, sold in lots of less than 200 lbs.) At these prices the crop gives a very good return to growers.

Complete figures relating to sales are not available but returns received show that 26 tons were sown at an average of slightly over Shs. 6/50 per bag.

As indicated in my Annual Report, 1937, maize is tending to take the place of cotton to some extent particularly in parts of Bujenje situated conveniently for marketing. Like cotton, maize is a useful crop to follow tobacco and if planted in the period July–August is ready for harvesting in the dry weather in January when the grain can be dried out easily and marketed at a moisture-content acceptable to buyers. Early-planted maize, *i.e.*, maize planted in the period March–April, cannot be harvested under such favourable conditions and is generally not so satisfactory for milling purposes.

The present outlet for the crop is limited and there is danger of over-production. Were an assured market available maize production could readily and easily be extended in Bunyoro.

In the southern highlands portion of the West Nile also maize appears to be increasingly widely grown. There is at present no market for this maize and the fact that increased acreages of the same crop are being grown is presumably due to the fact that numbers of men have returned to the district with an acquired taste for maize as an article of diet.

FOOD CROPS AND FOOD POSITION.

The unusually dry conditions prevailing during the first half of the year occasioned considerable anxiety regarding food supplies generally throughout the Province. Fortunately for all concerned most areas began the year with a fairly good stock of food from 1937, which was a particularly favourable one for all crops. Although the lack of rain in the period March to June greatly retarded both the planting of food crops and the subsequent growth of such food crops as were with difficulty established and stocks of food in many areas ran perilously low in consequence, no general widespread shortage in any way resembling a famine developed.

With the advent of good rains mid-way through the year the general anxiety on the score of a possible famine later was allayed. The response of the cultivators to the opportunity presented by the more favourable conditions was immediate and vigorous with the result that by October in most areas the position had reverted practically to normal.

Minor local food shortages of varying degrees occurred, notably in the southern lake shore area of Kioga County (Lango), in parts of which issues of food were necessary in the period May–August and where food is still very short, and in parts of Buhaguzi and Bugahya Counties (Bunyoro) where, however, the shortage eased with the advent of the small millet harvest in late November.

The acreage of small millet planted in Lango continues to increase (127,581 acres in 1938; 112,847 acres in 1937; 96,315 acres in 1936) but the acreages of sweet potatoes and cassava have declined somewhat. The decline in the latter is believed to be due to the exceptionally large acreage planted in 1937, a portion of which is still available, and the position is believed to be satisfactory. In the West Nile, in which the season was much less unfavourable than in other parts of the Province, but in which locusts were present for a considerable part of the year, there was a very great increase in the sweet potato acreage. The crop was successfully introduced into areas in which it was little grown previously and this entailed much transporting of cuttings.

Although the year was one of considerable difficulty it cannot be regarded as altogether unsuccessful from the point of view of food crop production. The position as regards food supplies is not as satisfactory as it was at the end of 1937 but it is not nearly so unsatisfactory as at one time appeared probable and provided the 1939 rains are not unduly delayed the general situation presents no cause for alarm.

PESTS AND DISEASES.

An extensive movement of *Nomadacris* from Mengo and Busoga northwards into Bunyoro and Lango began in February. The movement continued during March, April and May. The swarms reached Acholi in April. Egg laying occurred in July and August in Lango. Energetic measures were taken against hoppers but small bands of the latter were still present in September and October. Damage to crops by *Nomaadcris* was nowhere severe.

Two general movements of *Locusta* occurred. The first began in February when flying swarms entered the West Nile and Madi from the Belgian Congo and continued throughout March. The swarms circled about in these two districts and either passed on northwards to the Sudan

or returned to the Congo. Egg laying by these locusts took place and hoppers appeared in May. These were successfully dealt with for the most part by June but a few remained.

The second movement, which was on a much larger scale, began in July with the passage southward into East Acholi of a large flying swarm from the Sudan. The influx of fresh flying swarms from the north through Acholi and Madi continued into September. By August Lango was affected as far south as Lake Kioga and in September a swarm reached Bunyoro. Egg laying took place in Acholi and Lango in October, and in the West Nile and Bunyoro in November. Small bands of hoppers were present in many parts of East and West Acholi and in Lango by the end of November.

Damage done to crops by *Locusta* was locally severe in one or two places, notably in Acholi district in August and in the southern part of the West Nile in November, but was nowhere widespread or significant from the point of view of the general food supply.

COTTON PESTS AND DISEASES.

The incidence of Blackarm was again slightly above normal in all districts of the Province except in the West Nile and Madi. Wet conditions in October favoured the spread of the disease but drier weather later has checked it and yields are not expected to be materially affected. *Dysdercus* appears to be much less prevalent than normal and no cases of Cotton Wilt have come to notice. *Helopeltis* and Angular Leaf Spot are present but are occasioning no serious damage.

PLOUGHING.

The general standard of ploughing in Lango, which is still the only district in the Province in which ploughs are used to any extent by African cultivators, remains regrettably low. In an effort to secure an improvement in the standard of ploughing the services of the Ploughing Instructors were concentrated in 1938 to a greater extent than formerly on supervision of ploughing in the field as opposed to the mere training of recruits to ploughing. All ploughing done by the Instructors themselves in the course of their work was done across the slope and no opportunity was neglected by the Instructors to impress upon the plot-owner, be he recruit or experienced ploughman, the advantages of this as compared with ploughing up and down hill. Apart from ploughing actually done by the Instructors themselves or directly supervised by them the effects of the propaganda to secure better ploughing are not yet very apparent. The Lango is by nature a stubborn man, holding strongly to his own opinions on most matters, but it is hoped that continual demonstrations on his own land of better ploughing will not be without their effect.

The amount of actual ploughing which can be effectively supervised each year by a small body of Instructors is small in relation to the total acreage ploughed in the district, and it is to be expected for this reason that progress will be slow until the idea catches on and begins to spread under its own impetus.

AGRICULTURAL EDUCATION.

FARM SCHOOLS.

At the Annual General Meeting of the Gulu Farm School Advisory Board the setting up of a local sub-committee to select suitable entrants from among the candidates for admission was decided upon. The sub-committee appointed consists of the District Commissioner, Acholi, the Agricultural Officer, Masindi, and the Representative on the Board of the Verona Fathers' Mission.

A similar committee, consisting of the District Commissioner, Lango, the Agricultural Officer, Lango, the Veterinary Officer, Lango, and the Farm Manager was appointed by the Lango Native Administration Farm Board of Control.

The setting up of these committees represents an important step forward in view of the importance which attaches, where Nilotic peoples are concerned, to group settlement (as opposed to scattered settlement) of out-going pupils. There is an increasing number of indications to show that the easiest way, if not the only way, to secure lasting group settlement is by admitting entrants from the same Jagoate or clan group and the selection of candidates on this group basis requires the maximum amount of local knowledge and experience that can be brought to bear upon it.

The Gulu Farm School began the year with 37 pupils in residence of whom 15 were in the first year of the course and 22 in the second year. Of those in the second year 12 (seven bachelors and five married men) are due to pass out of the school in January, 1939, to take up holdings and eight (all bachelors) are remaining on for a further period of training.

Building operations continued throughout the year at the Lango Native Administration Farm, Ngetta, and training of pupils proceeded concurrently. Nine pupils completed their training and left in December to take up holdings in Lango.

COURSES OF INSTRUCTIONS.

Full advantage was taken of the various courses of instruction available at Serere and Bukalasa. Fifteen chiefs from Lango, twenty-two from Acholi, five from West Nile and five from Madi attended short courses of instruction in agricultural subjects at Serere and three chiefs from Bunyoro took the longer course (two months) at Bukalasa.

The number of instructors from the Northern Province districts who attended courses at Serere was twenty.

MISCELLANEOUS.

AGRICULTURAL SURVEYS.

One survey was completed during 1938, *viz.*, that of Aloropi wakilate of Offude county in the West Nile. Two surveys in the West Nile are now in the process of completion and will be submitted early in 1939.

SUMMARY.

Adverse weather conditions in the first half of the year gave rise in May to fears of a general food shortage in September and October. With the advent of more favourable weather conditions mid-way through the year the position rapidly improved and the year on the whole was not unfavourable to agriculture.

Apart from minor local shortages in one or two small areas food supplies were adequate. The carry-over is also adequate but it is probably not as large as it was at the end of 1937.

The 1937-38 cotton crop (marketed during 1938) was easily a record one for the Province. The prices paid for cotton in 1938 were the lowest for some years. High acre-yields offset the low prices to some extent but the crop as a whole was a disappointing one from the producers' point of view. Despite this and the unfavourable weather conditions in the early part of the planting season the cotton acreage (1938-39 crop) as a whole has been maintained and the upward trend in the Lango and West Nile acreages has continued.

In the case of the tobacco crop production exceeded all expectations in Bunyoro. The quantity produced in the latter district (2,323,023 lbs.) must go some considerable way towards replenishing local manufacturers' stocks which have been low for the past two years. Both in Bunyoro and the West Nile the average prices received by growers per leaf tobacco were higher in 1938 than for many years.

The marked improvement in the grade of the West Nile leaf which took place in 1937 has been maintained in 1938. There is still room for much improvement, however, in the West Nile leaf in this respect.

The acreage under coffee in Bunyoro declined slightly during 1938 but the West Nile acreage has been maintained. The production of coffee in the latter district, though still small, exceeded the expectations.

Locusts both *Nomadacris* and *Locusta* were present in many areas of the Province for considerable periods but on the whole did no material damage to crops.

T. McEWEN,
Agricultural Officer, Masindi.

Appendix V.

Statement of Revenue and Expenditure.

DEPARTMENTAL EXPENDITURE—							£
Personal Emoluments	..	..	..	..	..	..	41,679
Other Charges	..	..	..	..	..	..	20,364
SPECIAL EXPENDITURE—							£
Purchase of tractor and lorry	..	..	..	..	..	..	890
Compensation to Natives: Extension and establishment of Experiment Stations	..	..	..	..	..	..	233
Capital expenditure on Kawanda Seed Farm	..	..	..	..	..	..	419
Anti-Malarial Measures, Serere	..	..	..	..	..	..	100
Equipment, Serere Laboratory	..	..	..	..	..	..	234
Development of Animal Husbandry	..	..	..	..	..	..	131
Buildings, etc., and water supply for cattle at Serere	..	..	..	..	..	..	1,099
Experiment in Irrigation: Water wheels	..	..	..	..	..	..	146
Nakuru Agricultural Show	..	..	..	..	..	..	29
							3,281
							65,324
Less re-imbursements by the Empire Cotton Growing Corporation in respect of:—							
(a) Capital Expenditure, Kawanda Seed Farm	..	..	..	..	..	..	1,500
(b) Upkeep, Kawanda Seed Farm	..	..	..	..	..	..	800
							2,300
							63,024
REVENUE DIRECTLY DERIVED FROM AGRICULTURAL SOURCES—							£
Cotton Tax	..	..	..	..	..	..	156,885
Licences to Purchase, Store, Gin, and Bale Cotton, etc.	..	..	..	..	..	..	12,536
Sale of crops, plants and seeds, etc.	..	..	..	..	..	..	1,159
Tobacco baling charges	..	..	..	..	..	..	672
School Fees—Smallholders courses, etc.	..	..	..	..	..	..	40
Export and sale of trial Consignments	..	..	..	..	..	..	12
Sale of surplus lint	..	..	..	..	..	..	17
Licences for Coffee Curing Works	..	..	..	..	..	..	21
Licences for Coffee Hulling	..	..	..	..	..	..	3
Licences under the Native Produce Marketing Ordinance	..	..	..	..	..	..	11
EXCISE DUTIES—							
Tobacco and Cigarettes	..	..	..	..	..	..	63,106
Sugar	..	..	..	..	..	..	12,900
Tea	..	..	..	..	..	..	3,032

Appendix VI.

Uganda Protectorate.

POSITION IN 1938 COMPARED WITH 1937.

A	1938	Increase		Decrease	
		Quantity	£	Quantity	£
Grain and Flour	1,439	4,411	735	..	..
Feeding stuffs	2,929	52	15	..	..
Chillies ..	1,611	226	402	..	..
Coffee, raw, hull	327,636	22,203	..	..	92,847
Salt, other	1,566	3,598	564	..	..
Sugar, refined	118,847	..	..	1,965	4,669
Tea ..	6,967	..	..	140	760
Other articles of	14,765	..	9,803	..	..
Cigarettes	42,974	..	2,297	2,222	..
Tobacco, manuf	4,439	6,688	655	..	..
Tobacco, unman	7,798	116,514	3,455	..	..
Timber ..	1,391	..	..	29,186	4,856
Tin ore ..	70,551	..	..	22	6,082
Cotton, raw	3,427,948	255,237	..	..	841,335
Sisal, fibre and	27,104	930	8,540	..	..
Seeds, cotton	306,939	19,276	..	..	85,144
„ sesame	8,679	..	..	307	5,338
Groundnuts	..	..	..	135	1,623
Hides ..	66,214	4,315	..	..	18,098
Skins ..	19,446	..	..	42,308	11,278
Rubber, plantat	36,673	2,104	3,631	..	..
Ivory, elephant	14,602	..	..	200	12,833
Other unmanufa	2,878	..	..	..	1,509
Methylated spir	731	916	174	..	..
Other articles	9,426	..	1,632	..	..
Gold bullion	145,413	4,069	20,700	..	..
36	4,668,966	..	52,603	..	1,086,372

Appendix VII.

nder Cultivation, 1938.

Simsim	Ground-nuts	Cassava	Tobacco	Wheat	Rice	Chillies	Peas	Miscellaneous.
3,028	29,852	101,380	336	..	..	25	..	10,000
270	26,150	13,793	350	5	5	140	..	120
2,561	4,983	13,999	220	..	..	24	200	1,500
5,859	60,985	129,172	906	5	5	189	200	11,620
3,435	14,284	11,706	50	..	500	..	..	..
2,000	3,618	28,520	34	..	432	..	..	..
3,359	7,140	21,440	..	..	215	..	..	3,631
540	730	14,063	100	..	..	6	502	4,302
23,923	32,326	24,828	..	..	..	..	..	..
400	500	10	50	..	..	..	..	..
33,657	58,598	100,567	234	..	1,147	6	502	7,933
62,139	8,351	19,313	120	..	150	20	85,094	265
10,256	1,230	20,000	3,650	..	1	..	8,000	4,500
45,289	8,429	17,079	143	..	300	..	12,500	..
4,500	3,000	6,500	200	..	130	..	..	20
67,401	10,030	45,921	1,400	..	73	..	9,917	..
189,585	31,040	108,813	5,513	..	654	20	115,511	4,785
428	2,678	7,315	131	1,827	149	347	25	4,944
..	2,000	1,500	400	..	..	..	4,500	..
..	32	57	..	..	..	..	6,860	..
428	4,710	8,872	531	1,827	149	347	11,385	4,944
229,529	155,333	347,424	7,184	1,832	1,955	562	127,598	29,282

Livestock—1938.

Province and District	Cattle	Sheep	Goats	Swine	Donkeys	Horses	Mules	Camels
BUGANDA—								
Mengo ..	139,883	48,670	318,301	965	6	6	..	..
Mubende ..	13,661	4,698	45,643	..	..	..	..	..
Masaka ..	84,470	11,809	54,422	Few swine, no records kept.	..	..	..	..
TOTAL ..	238,014	65,177	418,366	965	6	6	..	..
EASTERN—								
Busoga ..	151,899	32,024	175,237	..	..	..	..	..
Teso ..	381,303	44,835	148,085	2	44	10	..	..
Karamoja ..	300,000	550,000	320,000	12	25,000	..	1	80
Bugishu ..	168,994	72,541	143,881	24	131	3	..	..
Bugwere ..	140,127	35,976	147,408	..	9	..	..	..
Budama ..	99,674	26,017	66,782	21	18	9	..	..
TOTAL ..	1,241,997	761,393	1,001,393	59	25,202	22	1	80
NORTHERN—								
Lango ..	474,259	116,380	190,042	..	20	2	..	..
West Nile ..	141,111	37,518	147,437	119	..	..	22	..
Madi ..	7,229	7,100	11,785	..	..	..	..	4
Acholi ..	102,109	35,697	56,591	..	16	..	..	..
Bunyoro ..	12,360	24,995	89,391	..	..	..	..	..
TOTAL ..	737,068	221,690	495,246	119	36	2	22	4
WESTERN—								
Ankole ..	205,147	108,405	204,106	140	13	1	..	..
Kigezi ..	105,752	241,664	289,042	45	..	..	..	..
Toro ..	54,364	46,421	87,717	..	..	..	..	..
TOTAL ..	365,263	396,490	580,865	185	13	1	..	..
GRAND TOTAL ..	2,582,342	1,444,750	2,495,870	1,328	25,257	31	23	84

European Agriculture, 1938.

Province and District	Total Acreage Cultivated	Coffee		Para Rubber Acres	Tea Acres	Cotton Acres	Tobacco Acres	Miscellaneous Acres
		Arabica	Robusta					
		Acres	Acres					
BUGANDA—								
Mengo ..	15,776	2,125	5,101	8,467	1,784	7	..	113
Masaka ..	789	307	441	..	41	..	..	..
Mubende ..	190	..	190	..	..	..	..	..
TOTAL ..	16,755	2,432	5,732	8,467	1,825	7	..	113
EASTERN—								
Busoga ..	820	60	600	..	..	..	54	106
Central ..	136	118	..	..	..	..	..	18
TOTAL ..	956	178	600	..	..	..	54	124
WESTERN—								
Toro ..	3,108	2,270	140	..	589	..	..	109
NORTHERN—								
Bunyoro ..	2,255	351	657	1,201	..	..	65	73
West Nile ..	165	115	..	..	..	..	50	..
TOTAL ..	2,420	466	657	1,201	..	..	115	73
GRAND TOTAL ..	23,239	5,346	7,129	9,668	2,414	7	169	419

NOTE.—1,913 acres are interplanted areas.

Compiled from 147 Returns.

Appendix X.

Asiatic Agriculture, 1938.

Province and District	Total Acreage Planted	Coffee		Para Rubber	Sisal	Sugar Cane	Cotton	Tobacco	Tea	Mis- cellaneous
		Arabica	Robusta							
		Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre	Acre
BUGANDA—										
Mengo	7,228	53	396	645	..	5,410	49	100	470	105
Masaka	457	..	51	100	..	223	51	..	..	32
Mubende	..	..	..	..	..	..	..	..	..	..
TOTAL	7,685	53	447	745	..	5,633	100	100	470	137
EASTERN—										
Busoga	10,463	25	273	400	..	9,679	..	171	..	..
WESTERN—										
Toro	40	40	..	..	..	..	..	..	..	..
NORTHERN—										
Bunyoro	7,235	..	..	..	7,200	..	..	35	..	..
GRAND TOTAL	25,423	118	720	1,145	7,200	15,312	100	306	470	137

NOTE.—85 acres are interplanted areas.

Compiled from 23 Returns.

Details of Machinery at Gineries in the Uganda Protectorate.—1937/38 Seasons.

Province and District	Ginneries		Total Registered Ginning Capacity Expressed as Single Roller Gins	Working Ginneries											
				Gins			Seed Openers	Presses			Engines				
	Working (Licensed)	Silent	Roller		Saw	Hand		Power	Steam	Oil	Suction Gas				
			Single	Double											
EASTERN—															
Busoga ..	22	13	568	358	56	..	27	..	21	12	11	1			
Budama ..	6	1	131	97	5	2	6	..	6	2	3	1			
Central ..	13	4	288	219	..	2	13	1	12	6	5	2			
Teso ..	15	10	339	181	20	8	16	4	15	5	2	9			
TOTAL ..	56	28	1,326	855	81	12	62	5	54	25	21	13			
BUGANDA—															
Mengo ..	51	13	910	750	11	1	54	..	51	37	6	9			
Masaka ..	10	..	158	152	3	..	10	1	9	8	2	..			
Mubende ..	4	1	48	42	..	..	4	..	4	4	..	..			
TOTAL ..	65	14	1,116	944	14	1	68	1	64	49	8	9			
NORTHERN—															
Lango ..	11	6	261	150	39	..	12	..	11	6	4	1			
Bunyoro ..	3	2	45	32	..	..	3	..	3	3	..	..			
Acholi ..	6	..	67	67	..	..	6	..	6	6	..	..			
West Nile ..	1	..	24	..	12	..	2	..	1	1	..	..			
TOTAL ..	21	8	397	249	51	..	23	..	21	16	4	1			

Uganda Cotton Exports.

Country of Destination	1934		1935		1936		1937		1938	
	Centals	£	Centals	£	Centals	£	Centals	£	Centals	£
United Kingdom ..	88,668	208,586	39,892	103,522	115,152	281,970	35,369	103,383	111,553	230,320
Ceylon ..	400	1,160	800	2,020	..	..	1,200	4,020	3,010	6,522
India ..	792,904	2,066,062	926,488	2,610,686	649,399	1,707,427	929,727	2,928,902	1,374,846	2,947,076
Union of South Africa ..	4	10	..	..	6	11	..	..	..	..
Zanzibar ..	..	..	..	..	..	..	..	..	174	257
Tanganyika Mandated Territory ..	7	12	8	14	6	13	4	7	115	167
Germany ..	3,892	8,814	17,539	38,335	26,181	65,468	5,119	13,246	4,044	5,999
Belgo-Luxemburg Economic Union ..	3,322	824	14,186	31,446	8,268	20,640	14,448	40,166	8,577	15,206
Spain ..	3,117	7,971	..	..	1,848	4,620	..	..	..	..
Estonia ..	..	..	..	..	2,000	5,100	..	..	..	..
France ..	12	31	9,354	23,387	3,732	9,098	1,592	4,576	7,054	14,151
Bulgaria ..	..	..	..	..	..	..	..	..	112	112
Italy ..	2,173	5,835	2,264	6,654	3,936	9,579	2,843	8,328	..	..
Latvia ..	..	..	..	..	2,000	5,170	2,673	8,004	3,600	8,100
Netherlands ..	..	..	1,200	3,300	2,000	4,920	800	2,660	9,580	20,570
Poland-Danzig ..	660	1,584	..	..	32	84	3,752	12,122	508	1,090
Portugal ..	..	..	..	..	4,770	12,074	843	2,590	2,978	6,550
Sweden ..	..	..	..	..	3,800	10,450	5,600	17,760	6,356	13,401
Union of Socialist Soviet Republics (Russia) ..	864	2,234	1,000	2,750	..	..	..	..	..	..
China ..	10,841	27,427	..	..	19,601	50,352	17,000	54,270	12,000	26,210
Dutch East Indies ..	..	..	..	..	..	..	..	..	400	800
Japan ..	..	..	236	673	442,661	1,139,903	332,592	1,069,239	135,827	284,577
French Possessions in India ..	..	..	..	..	..	..	..	..	2,200	2,400
Belgian Congo ..	4	10	1	2	..	..	..	..	..	..
Ruanda-Urundi ..	..	..	..	..	..	..	..	..	1	2
Madagascar ..	..	..	..	..	..	..	4	10	..	..
TOTALS ..	1,142,568	2,927,796	1,012,968	2,822,739	1,285,392	3,326,879	1,353,566	4,269,283	1,682,934	3,583,510

Bales in
Thousand





